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No. 5

Presidential Address
ON
THE UNIVERSITIES IN MEDICAL RESEARCH AND PRACTICE.

Delivered before the Eighty-eighth Annual Meeting of the British Medical Association in Cambridge

BY SIR T. CLIFFORD ALLBUTT, K.C.B., LL.D., M.D., F.R.S.,
REGIUS PROFESSOR OF PHYSIC, UNIVERSITY OF CAMBRIDGE.

[Sir Clifford Allbutt began his address with a vivid review of the social and artistic development of England when the claims for continental dominion were relinquished, in the course of which he showed that the older Universities, at home and abroad, were not "founded" as such, or as we know them, but grew with the needs of the age.

THE UNIVERSITIES AND THE PROFESSIONS.

He proceeded to show that the Universities, ancient and modern, have made the professions by the fostering of research and the maintenance of due standards. Instancing Greek and Roman examples, he insisted that no particular calling can be followed without an education which connotes a more comprehensive design. "We are teaching Medicine well: but we need badly *a common literary basis.*" Regarding education from the first as an introduction to life, he pointed out alike the danger of specialisation and cramming. He insisted on the need, met at Cambridge to some extent by inheritance from forefathers, of imagination in the pursuit of learning, and recommended the simplification of the necessary years of pupilage in medicine—"five years is long enough in all conscience for a young man to spend in learning to be a safe practitioner"—by the recognition of one curriculum for a diploma, and another, of extended form, for the University degree. The candidates for the diploma—and he favoured a one-portal system—would put immediate utility in the first line, while each University would be left free "to mould its teaching after its own fashion and standards, and to transform its interior tests." He concluded this section of his address by affirming that the medical curriculum could be substantially lightened by better teaching, and described the structure and aims of the educational course for medical students at Cambridge. He continued:—]

THE DEBT OF OTHER SCIENCES TO MEDICINE.

My old medical friend, Mr. Meade, of Bradford, was almost the only man who knew much about flies at the time when Manson and Ross began to watch these little pests. Without Medicine bacteriology, and the study of the cell, would have made slow way; yet it is the study of the cells of bacteria, of algæ, of protozoa—not of mandarins—which has brought us nearer to the secret of life. On the wonderful world of the cell I have spoken before. Professor Hopkins has lately described to us the almost incredible coexistence in it of different constitutions, phases, and events; though every change in any phase affects the equilibrium of the whole cell system. And every one of these is essential to the whole; "so long, for example, as a liver cell remains alive its glycogen constituent cannot be wholly removed." If a cell be so ground up as to become more homogeneous, its reactions fall out at haphazard, and the cell dies by mutual destruction of its parts. This process of nature is illustrated on a mighty scale to-day in the disintegration of the Russian social organism.

Some of the apparently simple cell constituents, hæmoglobin, for instance, are incredibly complex; this substance is specific for every kind of animal; in allied species, if concordant, it is not identical. Of the chromosomes I need say nothing, except to hope that as X rays have analysed crystalline structure some such rays may analyse nuclear constitutions.

By another way Medicine has promoted research on organic syntheses; and conversely on the reduction of foods into the more complex amino-acids before being rewoven into the tissues of life. From Medicine began our recognition of the plowman as the first parent of animals and man, and our fuller knowledge of "the green plant as the fundamental capitalist."

> Herbs gladly cure our flesh, because that they
> Finde their acquaintance there.

In the dark soil the nitrifying bacteria live on inorganic matter; so in the light some inorganic colloidal systems can build up formaldehyde (B. Moore). Medicine has introduced the chemist to the domain of the hormones and chalones, themselves also bodies of the simpler chemical constitution—some crystallisable, all able to resist prolonged boiling—blended into a wonderful physico-chemical coördinating system, secretly at work all the time under the diagrams of the innocent neurologist. We may suppose, indeed, that every active tissue of the body, or every cell, even of bone and skin, or of the substrate of mind itself, like every individual of a social organism, contributes some element to the organic whole, some inward production necessary for growths or for signals.[1] There may be a world of pathological (alien or perverted) hormones as yet unexplored. May the dive inwards of epithelial cells in cancer be due to some inversion of chemotaxis, possibly under the influence of an alien (parasitic?) enzyme? Within the body, then, all parts are the "environment" of each—so that we have both an inner and an outer "climate," an aspect of the microcosm not to be forgotten in the field of mental disease. Thus it is that "Each part may call the farthest, brother." And these agents have a field of action far beyond the body, as we see, for example, in the sexual hormones. If there be a "migration hormone" its sphere is the world.

Again, is it not largely by Medicine that the study of enzymes has thrown light upon the operations of catalysis which, like the rollers under a log or, as we now think, more by engagement and disengagement like rack and pinion, is incessantly forwarding by various intermediate series and by reversible actions at points of concentrative equilibrium the processes of nature? The vitamines may be of this kind, agents which have upset our cruder calculations of nutritive values; for instance, in the feeding of children we no longer take cane sugar to be the vital equivalent of lactose, nor margarine of butter; not all the nitrogen of nutrition is included in protein, nor are phospho- and amino-lipins, nucleic acid, amino-acids, and so on, mutually convertible in the body. We must admit that the fundamental principles of nutrition have yet to be redetermined. Moreover, the war has forced us to remember the mutual dependence of food kinds; that of course fats and carbohydrates are not wholly independent or equivalent; the carbohydrates cannot make up any great lack of fats, nor can oxidation of fats proceed in the absence of carbohydrates.

Another system of balances in the body, as of the reciprocal functions of lung and kidney, is more obviously chemical. Medicine has taught us how the lung deals with the CO_2 ions, the kidneys with sundry other acids, so that the blood reaction is maintained with extreme nicety; and that other systems—for example, the vasomotor—are probably little less sensitive, and that there are other subtle causes of anoxæmia besides the cardio-pulmonary (Haldane); so that in Medicine it is of the first importance that in all abnormal conditions the oxygen tension of bloods should be systematically ascertained and compared. The hydrogen-ion concentration is consistently higher upon flesh diet, lower upon vegetable diet; but, I think, we have not yet learned to discriminate so subtly as Charles Kean, who is said to have chosen his viands according to the parts he had to play—pork for tyrants, beef for murderers, mutton for lovers.

Next after the origin of life itself, from ancient times to this day no enigma has attracted and baffled the curious mind of man more than that of living "form."

[1] Mathews: Physiological Chemistry, second edition, p. 835.

Many of our keenest minds—Haldane, D'Arcy Thompson, Osborn, Dendy, McBride, I mention a few names as they occur to me—are still chasing this will-o'-the-wisp; and moth-like I cannot but flutter after them. Of the nitrifying bacteria which assimilate inorganic matter, of the synthetic amines of animal nutrition, of the properties of colloids, I have spoken already to-day and last year; but "how," says Dr. Haldane, "is constant form maintained amid the continuous changes of our changing matter?" and—I may add—of variations of parts. Is "form" something after the manner of a seal, which is impressed upon matter? or is it, in Aristotle's sense, a kind of soul (entelechy) which shapes the potential, or capacity, into integral being? Here we hover between metaphysical or ontological concepts and natural law, or the properties of matter. A few years ago all notion of self-shaping was dismissed, and the animal regarded merely as a diagram of incident forces; to-day there is some harkback, if not to moulding entities, at any rate to some phases which partake both of germ and matrix. We had been taught that for development functional stimuli were all that was necessary; for instance, that the heart grew, even beyond the normal, only in response to demand for its work and by increased supply of blood to its tissues. But is there any functional adaptation from within? If a limb be not used the bone will still grow more or less; but why does the bone grow *round*? And an eye will grow, from a germ of it, in the dark (Loeb). Is there such a property in living matter as "functional adaptation"? Is function in its effect upon form adaptive or purposive? Is environment met by adaptive variation—for instance, in a germ cell? Again, if so, can specific properties of such a kind be acquired? Biologists seem to have proved that evolution of form may go on continuously when environmental change is suspended, or remains constant; and conversely that environmental change does not necessarily induce evolution. On a broad view, says Professor Osborn,[2] during the infinite variety of the widely diverging forms of the Mammalian period of the earth, the reptiles have shown very little change. We perceive that these questions arise in some contrast with the hypothesis of the selection of "chance" variations.

On the other hand, we find reason to marvel at the constancy of bacterial species; humble and embryonic beings that we should not expect to have become fixed in their habits. Yet they and their enzymes are very exacting about it; as we find, for example, with the several enteric bacteria or with the meningococcic or pneumococcic varieties, of which each has its own serous or agglutinin test, and is indifferent to the rest. And there is more still to be said; when the microbe finds itself in the host's body it may be wholly out of tune, or wholly in tune, with any or all cells that it approaches; in either case presumably nothing morbid would happen, perhaps, by a kind of zygosis, a benefit; morbid happenings would lie between this microbe and body cells within its range but not in tune with it. Now there seems to be reason to suppose that a microbe, on its approach to a body cell only just out of its range, may try this way and that to get a hitch on. If so, the microbe, at first innocuous, would become noxious. So on the other hand body cells may educate themselves to vibrate in harmony with a microbe before dissonant; or there may be mutual interchange and coadaptation. Such considerations arise out of many known phenomena at phase boundaries, of sympathetic vibrations, of acquired immunity, of new virulences, and so forth; the cells out of tune getting nearer and nearer into consonance with each other.

But, if things be so, surely we are face to face with a marvellous and far-reaching faculty, *the faculty of choice*, and this rising from the utter bottom of biology to the summit—formative faculty—"auto-determination," or, if you please, "mind." Can the microbe do as the retriever does when with a hare in his mouth he comes to a gate; he tries this way and that, then thrusts the hare under the gate, leaps over and pulls the hare through? So the microbe tries it on, this way or that, till it succeeds, by self-education in the school of experience—*Bildungstrieb*. This is far more—radically more—than "*élan vital*"; not merely energy but *choice*—plasticity driven to choose or fail; thus new devices are tried and new habits established. So likewise Dr. Topley has dwelt upon a microbe acquiring a capacity to bring about certain fermentations,[3] an ability, as he says, "to be regarded as something inherent in the organism itself." We may be reminded also of Professor Stanley Gardiner's "education" of his oysters—a very curious observation.

So far as I can think upon it there seems to be but one alternative hypothesis, but this does not cover so many phenomena. As I have said, if the vibrations of an alien cell are out of range of a certain body cell so as just to be indifferent but yet not far out of range, the vibrations of the one might induce like vibrations in the other, and meanwhile interference waves would arise in the field; thus disturbances—symptoms—would begin and continue until the two sets of waves should blend into unison; and this would mean acquired immunity. If a number of wag-at-the-wall clocks are hung near each other, in a calculable time they will get to swing in unison. But this hypothesis does not lead on, as does the trial and error hypothesis, to larger and larger gains. We see only a discord and a mode of requiescence; no line of development. What we apprehend is something more than orderliness of chemical reaction; that *cells are teachable;* a key to illimitable progress. Was not Coleridge right when he said—

> "For I had found
> That outward forms, the loftiest, still receive
> Their final influence from the Life within."

I am not for one moment forgetting that the physical modes of energy—adsorption, surface tension, and so forth—may count for much in these advances, arrests, immunities, and disintegrations. Adsorption, or other physical condition, may put up a block. How remarkable are the effects of anæsthesia and palsy which may follow injections of sodium oxalate and magnesium sulphate, and of their quick removal by calcium salts; indeed, the whole influence of calcium on metabolism—probably all of them surface (interface) actions, as of any radio-active element upon cell function.[4] Indeed, as in the relation of foodstuffs to amines, so in the physics of the cell we may discover a comparative accessibility and intelligibility of the processes of life—Poincaré's "*simplicité cachée*." It seems that God has more "respect to the measure and ease of the human understanding" than Boyle supposed.

RESEARCH.

Thus we are led to the thaumaturgic word "Research" which, for some of us, means remote and rather unreal speculations; for others the discovery of short cuts to making more money; for others again the ideal of pure knowledge. Research may be regarded as of two kinds, as natural observation and as artificial experiment; the one yielding more and more to the other as investigation penetrates from the more superficial to the deeper processes. Still, if we are to surprise and "capture wild nature in her secret paths," the two ways are strictly inseparable. Indeed, the infinitely little does man more harm that the enormously great. War may bring with in some redemptive virtues; pestilence only raw superstitions. The advance of the last half century from the deadhouse pathology to more refined and penetrating methods we have witnessed in our time, and yet more intimate methods, those of biochemistry for instance, are being rapidly unfolded. Research, as it is working to-day, advances from fixed and measured bases; as observation it watches Nature's march past; then as experiment it puts events to test under artificial conditions of separation or isolation, and measures their phases. But the laboratory cannot, as Nature does, contrive the unexpected; so we must "gear up our tiny machines to the vast wheel of Nature," and try for a first roughing out of an idea or concept. If we are to select our facts

[2] Osborn: Origin and Evolutions of Life, p. 137.

[3] THE LANCET, May 22nd, 1920, where he quotes "Penfold and others."

[4] Gates and Meltzer: Rockf. St., vol. xxv., and Journ. of Physiol., Feb. 20th, 1920.

to any considerable purpose as crucial, we must first have an idea in our minds; and for this a certain kind of imagination is needed, one of general concepts rather than of the concrete individualising imagination of the artist. Thus there are two kinds of discoverers, whose comparative outlines we have not yet well discerned. Of scientific discovery Henri Poincaré gives an interesting appreciation; he says that discovery consists of three stages: the first stage is of laborious work at the problem on all sides; the next is not one of conscious occupation with the subject, but of unconscious cerebration, during which a promising hypothesis may unexpectedly arise in the mind; the third is deliberate verification and completion of form. Thus out of an unlimited number of possible combinations, and by many speculations, the discoverer at length divines the true one. In Medicine this has been clearly the course of surgery, the side of Medicine which is closer to nature.[5] The surgery of my young days was only too "observational"; the friendly fingers of curious colleagues were popped in and out of an operative incision with no apprehensions about "the infinitely little." Now the observer is sadly pushed aside; the ritual of surgery is become like the magic rites of old, of which, if a point were dropped or a word changed, the virtue went out. But the rite could be done over again by the penitent; unluckily in surgical rites there is little room for repentances.

A new scheme of research into the origin of diseases, lately instituted at St. Andrews, claims our respectful attention. And may I be forgiven if here I pay a tribute to the rare devotion which inspired Sir James Mackenzie to forsake place and honour to follow after knowledge; indifferent whither he were led so long as truth was the leader. Sir James Mackenzie argues that the man in charge of the first deviations from health is the general practitioner; and that, if we are to detect diseases in their incipience, he must be the detective. One evening about the year 1879, when staying with Sir George Humphry, he and I sat into the small hours devising a method by which we hoped to engage the general practitioner in scientific investigation. We secured the coöperation of this Association and of many coadjutors[6]; Dr. Mahomed joined us as secretary. We hoped by gathering in large numbers of observations to eliminate error; and several series of questionaries were distributed. Four volumes of reports were issued, under such editors as Humphry himself (on Old Age), Butlin (on Cancer), Whipham (on Rheumatic Fever), and Isambard Owen (on Intemperance). But the effort was premature; the data were too rickety, the reports too often irregular, dilatory, and imperfect, and the reporters untrained in observation, punctuality, and precision. As things are few of our colleagues remember to let us know the issues of cases seen in consultation. We may hope now for better material and more accurate workers; not only so, but Sir James Mackenzie is developing another and no doubt better method—he is working with intense culture on a small holding and on a more intimate clinical plan.

In exploring a country the great watersheds and rivers are first laid down; to map out these and their valleys and tributaries is the first great work. These main features known, bearings are obtained whence to discover the contours of the hills and to track up to the hidden sources of the streams. This is Sir James Mackenzie's mission—to track out the nascent rivulets, and with his divining rod to dig for the springs which feed the streams of disease.

Let us not suppose that this research will be but a matter of cleverness, sagacity, or even of intensive observation; nor flatter ourselves that because Mackenzie produced his great work on the Pulse while a general practitioner that he achieved this by ordinary clinical observation, however acute. The progress of Medicine must in large part be endogenous. While our pathologists in balloons were working on morbid phenomena without ever seeing a sick man, Mackenzie was bringing laboratory equipment and exquisite laboratory methods to the bedside. The polygraph, no easy instrument to handle even now, was the grandchild of the kymograph; and by it was proved again that science consists—as Plato said five centuries before Christ—*in measurement*. So in the St. Andrews research, not only have the initial warpings to be discovered, in their many ways and tides, but their volumes and their curves also to be measured as precisely as were those of the circulation by the polygraph. The physicist and the biochemist will need all their expertness in valuing molecular motions, analysing secretions, recording blood tests and morphologies, and so forth in their earliest and subtlest phases. For it is in molecular dynamics that the first deviations will arise; massive visible changes come later, and happily are now in large part calculated or calculable. Mere observation—Nature's march-past—will not count for much now; and as to family histories—well, they vary with each historian. And we practitioners will need a more searching discipline before we can occupy ourselves with problems so subtle.

The laws of inheritance must, I think, be sought out, at any rate at first on animals; the generations of Man are too long for comprehension; besides, something else seems lacking in this study of the Genetics of Man? ..... Is it a sense of humour?

COMPARATIVE PATHOLOGY.

And there is something more to be said. If light is to be thrown upon the generation of diseases in man it must be in part also by study in a far larger field we must discover and compare the elements and phases of disease in animals and in plants. Sir James Paget, in his admirable address to the Pathological Section of this Association at Cambridge in 1880, reflected on the difficulties of human pathology because of its great complexity. He had "long and often felt that in this difficulty we might gain help from studying the consequences of injury and disease in the structure of plants" as less complex and under simpler conditions. To this field of pathology he devoted almost the whole of the address. A large part of my address in Medicine to this Association in Glasgow in 1888 was given to this appeal; it has found no response, hardly an echo. Yet what would anatomy be without comparative anatomy, language without comparative philology, anthropology, law, history, and even religion without a like comprehension? Without an Institute of Comparative Pathology in Cambridge our range of vision and work is contracted. In the "field laboratories," it is true, Professors Woodhead and Nuttall, ably seconded by Dr. Stanley Griffith, are doing as much as lies in the power of a few individuals; but any such effort is puny beside the sphere of observation and research awaiting us. The comparative survey must cover the diseases of plants as well as of animals, of the lowest of living things up to the highest. The money loss year after year caused by the depredations and the diseases of animals and plants is enormous, and many of the methods of dealing with them—as with foot and mouth disease and swine fever—barbarous, if at present imperative.

Yet no one stirs, save to gyrate each in his own little circle. There is no integration, no organisation of research, no cross light from school to school, no mutual enlightenment among investigators, no big outlook. The destruction by insects in forestry and agriculture alone in Great Britain is put at £30,000,000 per annum.[7] An Institute of Comparative Pathology in Cambridge, with the endowment of professorial chairs and subordinate workers, would cost, no doubt, a quarter of a million, a big sum; but what is this to the wastage of disease throughout the world of life!—to swine fever, diseases of cattle and horses, of crops, of forests, and so forth—utilitarian ends it is true, but to be followed on paths of discovery which would illuminate the whole field of nosology. Diseases are not "entities," nor even recurrent phases of independent events, but partial aspects of a universal series. The young graduates we have, many of them of great capacity; but every day we are losing them because they are not taken up at once into scientific teams; so they slacken, or drift into

[5] See C. A., Hist. Relations of Medicine and Surgery.
[6] See Sir G. Humphry's Presidential Address at Cambridge, 1880.
[7] Mr. L. Scott, M.P., in the House of Commons.

some other means of livelihood, and things muddle on as before. How blind we are!

PSYCHOTHERAPY.

[Here Sir Clifford Allbutt reviewed with force and pungency the modern developments of psychotherapy, for, "of late, their pursuit has stirred up much, and once more the human heart is declared to be a very messy place." With shrewd criticism of a certain side of psychoanalysis, he admitted the power, for good and evil, of suggestion in the life of a social animal, and the value of modern clinical research into the psychic complement of structural diseases.]

The moral on the whole is, he said, that we must use much circumspection in straying beyond the strand of experimental psychology—a fruitful inquiry so long as pursued on the methods of science. I do not say that in its applications to the many and variable callings and stresses of life, there is no place for psychic empiricism, no place for prying beyond the margins of evidence; but the surer must be our footing on the known, and the closer our watch upon our terms. Not for one moment do I forget the admirable work done in psychology in our own laboratories, at Oxford, and in the great pathological schools of the Maudsley, and the London Hospitals, and elsewhere. And the methods of the Industrial Fatigue Research Board, for the study by "vocation tests" of the "psychological relations between management and labour," seem to me, if I may say so, to be on sound lines, and to be likely to shed light upon the economy of both mental and bodily work. Again, such researches as those of Dr. Scripture on the speech of epileptics, whether verified or not, are at least conceived on sound lines of scientific method.

The black fate which befell the insane, once so humanely, rationally, and happily treated by the ancient Greek peoples from Empedocles to Galen or later, is one of the monstrous depravities which befoul the history of man; centuries of cruelty which lasted down to our own times.[8] When a Commissioner in Lunacy I did my best, encouraged by the late Dr. Hack Tuke, to convert the plans of new asylums from the barrack system to a village system; but every such attempt was thwarted by a stolid, idealess body, the Local Government Board of that day. A village community, with its homely associations, its groups of cottages, hospital, park, gardens, home farm and workshops, church, town hall and theatre, and its various social scenes and interests, would provide for nervous disorders of all kinds, and so lighten the shadow of insanity. Patients could be moved within the groups from one section to another without formal inquisition; with no more ceremony than precise entries in the case-books open to the Visiting Justices. In the treatment of any case of mental disorder the physician may soon, and often suddenly, be faced with the necessity of bodily restraint; and I cannot satisfy myself that patients should become liable to mechanical restraint or to confinement without the strictest precautions and guarantees. At Whitehall we were never without some information, only too often true, of concealment of insane persons, and of their ill-treatment in the sense of cruelty, or of bonds, or of coercion, or of neglect of proper domestic or medical care. The present obstacles to early treatment, it is true, are a grave hindrance to successful therapeutics, but the legal and practical problem is more intricate than public opinion is aware of.

GENERAL PRACTICE.

When I turn to Public Medicine I am met by two chief problems that call instantly for solution. If by studying the past we can better build up the future, what will history tell us of the future of the "General Practice" of medicine; and what of the Voluntary Hospital? He is a bold man who will pretend to foresee even the near future of either; yet neither can stand where it is at present. Let us consider General Practice first.

In England we cling to concrete experience; we look for friction, unexpected turns, compromises, chances; we have little belief in systems of thought and dialectics, and in medicine, as in political and social affairs, have trusted to experiment, to touch; we find safety not in ideal revolutions, nor in rigid organisation, but in broadening down, in criticism, and in the fertility of intuitive action. Scientific therapeutics are not to cast out empirical methods. The compass of large principles is often too wide for daily needs. We want theories within theories, axioms of less scope but more readily adaptable to the wantonness of life. Very true; but also the craftsman must bow his head to the deeper and wider principles which will eliminate the inessentials and economise the direction of his work. If the family physician must be rather receptive than productive, by the diffusion of scientific knowledge, and increasing familiarity with the spirit of science, the climate of thought will be changed throughout the profession.

The better class of general practitioner of 50 years ago was rather after the kind of Hippocrates or of Paré than of the modern graduate. His university, in the days before great cities—the "great wens" of Cobbett—was nature; in his clinical experience he enriched the instruction, half empirical, half dogmatic, of his medical school by the shrewd, observant, self-reliant, resourceful qualities of the naturalist. His science and his practice were of the naturalist, not of the biologist. In my early days a country drive with such a doctor in Yorkshire used to be one of the rewards of the consultant; and a bedside talk with him a lesson in quickness of wit and hand, and of instructive inference and prognosis. He was as clever as the modern cardiologist in knowing when to give digitalis, when to withhold it; if he were content to diagnose a case as "some bedevilment of the liver," his rules of thumb were not without their efficacy, and his *flair* for the issues of disease marvellous. He did not come across much "science," and what he did see of it, chiefly in casual "locums," did not attract him; for in truth half-science was less useful to him than whole craftsmanship. He was a woodland guide, not a geographer; but, as Aristotle and Darwin well knew, the woodlander gathers much curious lore. However, in the march of intellect this comrade, kindly and loyal as he was, is gone: and his sort of wisdom dies with the individual. Who is to come next? The official doctor, or a family physician more intellectual and no less independent?

An official doctor would be as alert and as progressive as a country parson, whose service is not much kindled by the chances of promotion to an archdeaconry or a bishopric; while to shift an official doctor from place to place would be to cut the inner threads of those intimacies which we are now declaring to be clews to the detection of diseases at their sources. Yet, as things are, the independent practitioner is isolated; even in a town he is apt to make a little orbit for himself, to drift out of intimacy, perhaps into some jealousies, with his brethren; he lacks mental incentive, and gradually lets slip occasions of scientific reunion and renewal. Indeed, he cannot readily leave home to attend public and scientific meetings, so that too often—as Morant complained—"medical men do not think nor express themselves in a statesmanlike way." His time even at home is so broken up that he loses the habit of study. He may leave his hospital school full of ardour and in rapid growth, but in practice his ardour cools and he drops into routine; or, at any rate, such is his peril, and so less and less may the doctor feel himself a member of a great profession; he may drift out of public affairs, his outlook and sympathies may shrink, his work become a trade, and his medical neighbour his "opponent."

Again, for some years past a few of us have been protesting against the clipping of family practice by official shears. We see the subjects of infectious fevers carried into isolation, and the tuberculous and syphilitic disappearing with them. The children are turned over to the school doctor, the parturient woman to the new midwife, and so forth. What is to be the end of this pollarding of family practice? Are its branches to be scattered about in a wilderness of "specialists" and the family physician a mere sweeper up of unconsidered trifles?

Panel practice, for some time discredited by its hereditary taint of the Club of infamous memory, and

[8] Pinel d. 1826; Schröder v. d. Kolk d. 1862; Conolly d. 1866.

by the continual dearth of the means of its development, should, if duly provided, expand into a large, honourable, and even universal department of medical work. The terms of engagement are to be more liberal; the clockwork is complete. But how is the practitioner to rise to higher standards of modern science and skill when no means of investigating disease or of making an intimate diagnosis are provided for him? He is well aware that the modern methods of medicine depend on such means as X rays, a battery of stains, and other cultural and biochemical apparatus; and not only an education in the use of these, but also the time to give to them. What should we think of a regiment of recruits called out to fight the enemy but unprovided with weapons or munitions? If the doctor be near a university centre he can get blood tested for morphological elements, or for sugar or nitrogen content, excretions analysed, bacterial examinations and vaccines made, and so forth; but it is imperative that these opportunities, now confined to a few, shall be universal. Moreover, if they are to be fruitful, the practitioner must consult personally with the scientist. These plants, then, and their staff must be established in all districts, together with a much larger provision of cottage hospitals. This university and its sisters are sending out every year bands of young graduates quite competent to deal with disease in all its forms, and to use refined means of diagnosis if these means are supplied. If not, how can we blame them if they fall into some stagnant routine? In district laboratories panel work would be paid by the Ministry of Health; for private practice a tariff of fees would be agreed upon.[9] A considerable sum for the commencement of these local centres was contained in the still-born Budget of 1914.

In the United States I am told that medical men are banding together in districts for such a development of their private practices. Five or six of them combine to rent a house with consulting rooms for each, and a common apartment for minor surgery, &c. Each member of the alliance—they are not exactly partners—is expected, in addition to his general practice, to take up special work in some department supplementary to the others; so that a fair variety of special skill may be available in the house; skill, if not of high expert value, which must still be sought elsewhere, yet quite sufficient for ordinary diagnosis and treatment. For this purpose visits of members to special clinics and ordinary holidays are mutually arranged. Patients like the system; they see that it is more thorough. Domiciliary visits become fewer, yet there is always one of the group on the spot. The fees are received by a secretary-attendant on the separate account of each member, and after all upkeep expenses are met the surplus is divided according to the credits of each. The individual earnings are higher than they were on the separate practices. Such are some of the material advantages; the spiritual are the disappearance of petty jealousies in a spirit of comradeship and a larger freedom for scientific and social life and for public service. The patients learn that a due remuneration of medical service is no longer gained by a multiplication of visits, nor by profits of dispensing.

These ends may no doubt be attained by different methods, but the essential need is the generally accessible laboratory and staff to be a little academy and place of reunion—a centre, let us say, for the meeting of the Divisions of this Association. But one word of caution: this centre must not be municipal, it must be free of all kinds of officialism, and kept alive by a small committee of local practitioners in alliance with the Insurance Commission.[10]

As regards the Voluntary Hospitals, I omit what I had written because the Report of the Consultative Council has covered a much larger ground, and so ably, that my passing reflections would be of little use. The dilemma between the lack of funds and the fear, almost an assurance, that public grants in aid would discourage private munificence, might, I think, be avoided if, on proof of efficiency, grants in aid were offered in some proportion to the amount raised by voluntary effort. To range up the Poor-law infirmaries with other hospitals and schools would enrich our clinical fields beyond all anticipation.

PREVENTIVE MEDICINE AND CLINICAL PRACTICE.

On the social mission of Public or Preventive Medicine, and on its integration with clinical practice, Sir George Newman and others of our leaders have said what is needful, better than I could say it. It is strange that not until the other day—so to speak—has the public awakened to its own needs in this matter, seeing that, at least from the seventh century before Christ and onwards, public health officers were appointed in the Greek countries. Yet 25 centuries later my old friend Dr. Warburton, of Pateley, wore out his life, and much of a good practice, by his not unsuccessful fight against enteric fever in the valley of the Nidd; and, thank God, he was but one devoted warrior among many. Let us remember, however, that the public has neglected science partly because science has neglected it. Now the medical service of the Panama Canal, and of the Great War,[11] by specific immunisation, brilliant sanitation, and modern methods such as the isolation of carriers, has brought medicine home not to each nation only, but to all men as an international and reforming influence. Of late years surgery has made our advances conspicuous, but inner medicine is coming again into her own; nay, they are one. From lesser to larger groups the standard of health must be more and more the guide and the signal of the nation, of the country, of the city, of the workshop; for public health is purchasable. If, by his invention of tools, Man has become the destroyer of creation, let Medicine show that tools can also be its saviour. Every righteous physician regards his practice as a social service, a means not only of bodily but also of social reconstruction, and of moral and intellectual health. Thus Medicine will become more and more a binding force in societies, a bond between nations, and a purification of the world.

Clinical Lecture

ON

FIBROIDS, LIPOMAS, DERMOIDS, AND POLYPI OF THE STOMACH AND INTESTINE.

Delivered at the Middlesex Hospital on April 22nd, 1920,

BY SIR JOHN BLAND-SUTTON, F.R.C.S. ENG.,
SURGEON TO THE HOSPITAL.

GENTLEMEN,—Fibroids are so common in the uterus you may easily imagine that this organ enjoys a monopoly of this kind of tumour. Experience teaches that tumours agreeing in naked-eye and microscopic characters with uterine fibroids grow from the muscular coat of the gastro-intestinal tract. There are two clinical varieties, subserous and submucous, and each usually occurs as a surprise in the operating theatre.

The specimen that prompted me to select this subject for the lecture was obtained from a spinster, aged 49, under my care in the hospital, and from whom I removed an ovarian cyst tightly impacted in the pelvis. The uterus, flattened over the anterior wall of the cyst, was otherwise normal. In the course of the operation a tumour the size and shape of a bantam's egg was seen on the cæcum, near the base of the vermiform appendix. This tumour could be described as sessile and subserous; at its junction with the cæcum there was a plexus of arterioles and venules resembling a nævus. Its removal was a simple affair. When hardened and bisected, the cut surface displays the usual whorled appearance so

[9] Since this address was written the valuable Report of the Consultative Council has been issued. I cannot well recast these paragraphs and must be content to welcome this Report and to express my agreement with it.

[10] Such a laboratory was built before the war at Wolverhampton, and as I had urged the institution of such centres I was honoured by a request to open it. It was, of course, held up during the war, but I hear it is now fully at work again and much frequented by the practitioners of the district.

[11] See Sir Douglas Haig's Despatch of December, 1917: "The preventive medicine man has saved his tens of thousands."

common in slow-growing hard fibroids of the uterus. It is in structure a fibromyoma. Clinically it was harmless.

In comparison with this a specimen preserved in the Museum of the Royal College of Surgeons of England may be studied. A fibroid similar in shape, size, and microscopical structure grew from the ileum, led to torsion of the gut, and set up symptoms of acute intestinal obstruction. An operation was performed, the tumour and the implicated section of the ileum were resected, but this failed to save the patient, a man aged 48.

This specimen illustrates the danger of a small heavy tumour hanging like a bob on the end of a loop of ileum, an ideal arrangement facilitating torsion of the gut. How tightly the gut may be twisted is shown in Fig. 1, for all the coats of the intestine, save the serous,

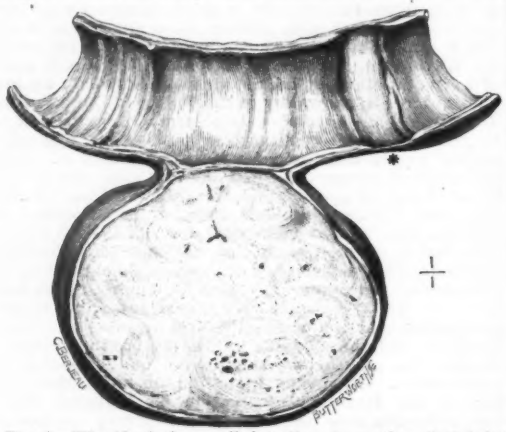

FIG. 1.—Fibroid of the small intestine, in section, that led to volvulus. * At this point all the coats of the gut, except the serous, yielded under torsion. From a man aged 48. (Museum, Royal College of Surgeons.)

have yielded, and the serous layer at the line of torsion is diaphanous. Many similar records can be gathered from periodical surgical literature.

The Museum of the University of Leeds has a specimen in which a pedunculated fibroid of the small intestine caused a volvulus of the whole of the small intestine. Such a comprehensive volvulus can only occur in those rare instances in which the whole of the small intestine, from the middle of the duodenum to the end of the colon, is slung on a common mesentery, an arrangement found in the human embryo which occasionally persists in the adult and predisposes him to this serious form of volvulus. I reported such a case in THE LANCET (1908, i., 1837). Intestinal fibroids are sometimes so big that they are mistaken clinically, in women, for uterine fibroids. A woman, aged 40, had a large hard tumour in the pelvis; in the course of the operation a pedunculated spherical fibroid, as big as two fists, was found connected with the pelvic (sigmoid) colon by a pedicle. The uterus was normal and smooth. The structure of the tumour was that of a myoma which had undergone mucoid degeneration. (Dujarier and Khan.)

Migratory Uterine Fibroids.

Gynæcologists have occasionally reported the occurrence of a subserous uterine fibroid that has detached its pedicle, which may have connected it with the uterus, and formed a new attachment to intestine or omentum. Fibroids supposed to behave in this way have been called migratory uterine fibroids. Improved knowledge relating to intestinal fibroids may lead to a revision of opinion in regard to this curious question, especially as a fibroid of the intestine weighing 7 lb. has been removed from a man, aged 40, in whom it produced intestinal obstruction (University College Museum). These examples illustrate, what observation of tumours throughout the body teaches—the baneful effects of simple tumours depend entirely on their environment. The size of a tumour does not offer a measure of its danger to life. A subserous fibroid occasionally grows from the stomach and reaches the size of a cocoa-nut; such a tumour merely produces uneasiness, but causes perplexity in diagnosis. A woman, aged 50, had signs indicating the presence of gall-stones, and a tumour the shape and size of a large pear; it could easily be moved about the abdomen in the neighbourhood of the gall-bladder. An operation revealed a large fibroid growing from the anterior wall of the stomach and an enlarged gall-bladder filled with stones. The tumour, which had been noticed many years, was coated with the white glistening cartilage-like tissue so common on chronic abdominal cysts and tumours long submitted to friction against the parietal wall. The gall-bladder and the tumour were removed. The latter proved to be a fibroid. Its removal involved resection of the wall of the stomach. This is almost invariably necessary with gastric fibroids. The patient was in good health six years after the operation.

Occasionally subserous fibroids of the stomach are large enough to reach as low as the hypogastrium; then the patient finds her way into the gynæcological department, where the tumour is almost invariably mistaken for an ovarian or a uterine fibroid, and serves to relieve the operative monotony engendered by specialism.

Uncomplicated fibroids of the stomach, like ovarian and uterine fibroids, are often passive tumours, but there are two stomachs in the Museum of Westminster Hospital which are exceptions to this rule. Each contains a pedunculated spherical tumour as big as a golf-ball growing within 5cm. of the pyloric orifice. A brownish-black depression on the tumour marks its summit like an umbilicus. In structure this spherical solid tumour is a fibromyoma. One of the stomachs was obtained from a woman, aged 50, who was admitted severely collapsed in consequence of hæmatemesis and melæna. She died three days after admission. The second specimen was obtained from a man, aged 37, who also died in similar circumstances. The clinical histories of these cases were published by Gossage and Braxton Hicks. Paterson regards this kind of gastric tumour as clinically a sarcoma. Fibroids of the stomach are not common tumours. Outland and Clendinning, in 1913, collected records of 79 examples.

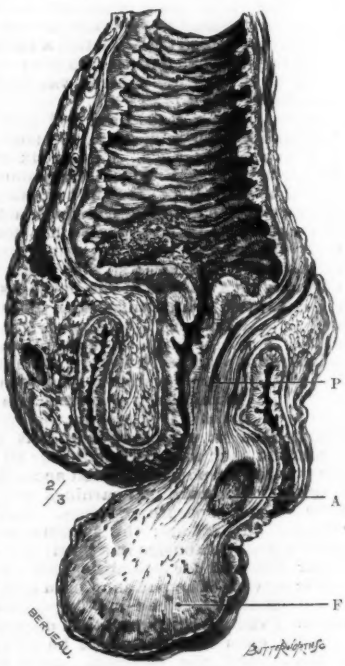

FIG. 2.—Portion of jejunum in section: a pedunculated fibroid led to intussusception. P, pedicle; A, abscess; F, fibroid. From a man aged 35. (Museum, Middlesex Hospital.)

SUBMUCOUS INTESTINAL FIBROIDS.

A submucous fibroid of the intestine is invariably solitary, and as it projects into the lumen of the gut the propulsive efforts of the muscular coat relentlessly endeavour to extrude it. Sometimes the pedicle is lengthened, and in extremely rare instances snaps. Commonly, the persistent muscular contraction of

the gut drives the tumour forward and leads to intussusception, with all its attendant evils—intestinal obstruction, which, unrelieved, usually ends in death (Fig. 2). There are cases on record in which a tumour of the small intestine has caused intussusception, and the intussuscepted portion of the gut has sloughed and been voided at the anus. It is curious that in many such cases the cause of such intussusception has been a secondary deposit of malignant disease. The chances of an intussusceptum sloughing are so few that it is the rule to interfere surgically, and with promptitude. In many cases the surgeon has no idea that a polypus is the cause of the trouble until he has completed the operation; unravelling the strangulated intestine he finds, perhaps, a fibroid no bigger than a ripe grape.

Some of the most serious complications occur when the tumour grows in the wall of the ileum, a common situation, and the polypus, propelled through the ileo-cæcal valve into the cæcum, drags a segment of the ileum with it.

Sir D'Arcy Power operated on a boy, aged 5, for a chronic ileo-cæcal intussusception. It was necessary to resect the ileo-cæcal segment, as it resisted reduction. Three weeks later a lump as big as a walnut was noticed on the boy's chest near the right nipple; this was a round-celled sarcoma. On re-examination of the intussuscepted gut a small mushroom-shaped tumour was found in the ileum an inch above the valve. This tumour was responsible for the intussusception and had the microscopic characters of a round-celled sarcoma. Many cases have been reported in which secondary deposits of malignant tumours in the small intestine have induced intussusception.

Sarcomatous Fibroids.

It is admitted by histologists that in minute structure some uterine fibroids closely resemble spindle-celled sarcomas, and it is impossible to decide whether such tumours should be called sarcomas or fibromas. One way out of the difficulty is to call tumours of this kind sarcomatous fibroids. This is also true for intestinal fibroids. The piece of small intestine represented in Fig. 3 contains a tumour the size of a walnut. Shattock examined it critically and believes it to be a spindle-celled sarcoma with nuclei of striking size in many of the cells. It was successfully excised. In such cases the clinical course alone decides.

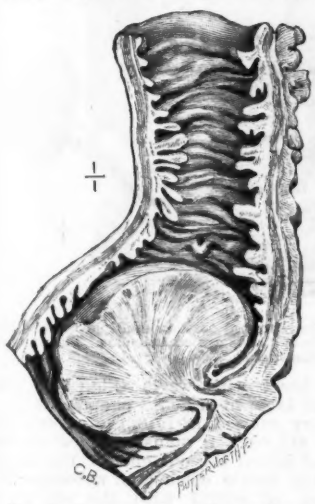

FIG. 3.—Segment of small intestine in vertical section containing a fibroid. Excised from a woman aged 45. (Museum of St. Thomas's Hospital.)

Intestinal fibroids, like uterine fibroids, often compromise the organ in which they arise:—

The subserous variety lead to volvulus (torsion) of the small intestine by their weight and movement, setting up acute and dangerous complications which often demand prompt and bold surgery.

Submucous fibroids of the intestine induce persistent propulsive movements in the muscular stratum of the gut, and these efforts almost invariably lead to intussusception, comparable to inversion of the uterus.

Intestinal fibroids are more dangerous than uterine fibroids, for they often cause obstruction, which is usually fatal unless relieved by surgical art.

Histologically they agree in the circumstance that the majority can be safely recognised as innocent tumours, but there are examples which cannot be distinguished from sarcomas.

INTESTINAL LIPOMAS.

Lipomas grow in the submucous tissue of the stomach and intestines—indeed, in any part of the alimentary canal from lips to anus—and are occasionally inimical to life. In the stomach small submucous lipomas the size of nuts have been described and are in the main pathological curiosities, but dangerous in the intestine. I found a submucous lipoma in the ascending colon, 5 cm. beyond the ileo-cæcal valve, in a man aged 44; he had had recurrent attacks of acute intestinal obstruction. The tumour, weighing 2 ounces, was successfully excised, and is preserved in the Museum of the Royal College of Surgeons of England. During the operation I noticed that the serous coat over the tumour showed a deep dimple, and the mucous membrane overlying the tumour was ulcerated. For a lipoma in a similar situation, in a woman, aged 31, Greenwood excised the cæcum and adjacent segment of the colon. The tumour is spherical, 4 cm. in diameter, and attached by a short pedicle to the wall of the colon. The mucous membrane covering the lipoma is ulcerated. The excised parts, with the tumour in situ, are preserved in the same Museum. Stabb operated on a man, aged 32, for intussusception of the ileum and found a submucous lipoma 75 cm. above the valve. He noticed a dimple in the serous coat overlying the tumour. The dimple suggests that the lipoma, though projecting into the gut, really arises in the subserous stratum of fat, and the dimpling of the serous coat is due to traction. This view is confirmed by a lipoma of the duodenum in the Birmingham Museum. It is a lobulated tumour depending from a pedicle 5 cm. long. Though the tumour lies within the bowel the serous coat is dragged in a little, and there is a small pit, or dimple, in the serous coat. The tumour clearly arose in the subserous tissue. The mucous membrane covering the tumour is ulcerated. The specimen was obtained from a dissecting-room subject.

The Museum of the Royal College of Surgeons contains a Meckel's diverticulum with a small lipoma apparently growing from the mucous membrane. The diverticulum had caused chronic obstruction; this led to an operation which ended fatally, but the lipoma was in no way responsible for the obstruction. The same collection contains a portion of the cæcum of a woman, aged 50, who suffered from constipation for many years. A lipoma grew within the folds of the ileo-cæcal valve, and the passage from ileum to cæcum is through a ring of fat covered with attenuated mucous membrane. It is a remarkable specimen. The cæcum was excised and the end of the ileum successfully anastomosed with the colon. (A. T. Compton, 1915.)

Lipomas, though simple and common, do occasionally destroy life; there is a submucous lipoma at the apex of an intussusception in the Leeds Museum.

DERMOIDS OF THE INTESTINE.

Dermoids are the rarest of all tumours that grow in the intestine. They have only been observed in the terminal segment of the large bowel. (Clutton, Danzel, and Port.) The Museum of the Middlesex Hospital contains an example growing from the posterior aspect of the rectum. It is as big as a walnut, and contains hair, grease, and a tooth, and was discovered post mortem. Several examples have been described growing from the mucous membrane of the rectum, and nearly all were found in women. The tumours are usually skin-clad and contain bone and teeth; in one of them, removed from a woman, aged 25, brain substance enclosed in a bony capsule was found. (Danzel.) The skin is usually pilose and the hair sometimes hangs in locks which extrude from the anus and cause annoyance. A pedunculated dermoid in the sigmoid flexure led to attack of intussusception in a girl aged 16. Clutton removed it and reported the clinical details in 1886.

Cystic dermoids occur in the rectum, and of this variety two examples are preserved in the Museum of St. Bartholomew's Hospital. One contains hair and a tooth; it was removed from beneath the rectal mucous membrane of a woman aged 39. The other, a multilocular cyst as big as a fist, contains hair. This dermoid was detached and extruded during labour. A careful examination showed no communication with the pelvic

cavity. (Souttar.) Small ovarian dermoids obstructing delivery have been forced through the walls of the rectum and extruded at the anus. This explanation does not apply to Souttar's case.

POLYPI (PAPILLOMAS AND ADENOMAS).

The term polypus is commonly applied to any pedunculated tumour in the stomach or the intestines; the name is merely of clinical use, and has no significance for the pathologist. Pedunculated tumours of the gastro-intestinal mucous membrane may be fibromas, lipomas, dermoids, adenomas, or papillomas. This section will be concerned with adenomas and papillomas. A simple form, shown in Fig. 4, resembles in shape a large ripe blackberry, hanging from the wall of the pelvic colon by a broad triangular band of mucous membrane. The head of the polypus is crowded with intestinal glands.

FIG. 4.—Solitary polypus of the pelvic (sigmoid) colon. The head of the polypus is crowded with intestinal glands. (Museum, Middlesex Hospital.)

Polypi may be solitary or multiple and sometimes exist in vast numbers on the gastro-intestinal mucous membrane from the termination of the gullet to the anus. They present themselves in various forms, some as flattened processes of mucous membrane beset with glands; many of the tags are long and narrow, others have club-shaped ends. Many are true warts and villous in appearance; occasionally they form clumps resembling cauliflowers. Often polypi and warts are attached by broad bases and so clustered together as to recall a colony of anemones on a rock. Such clumps and clusters of polypi are sources of danger as they favour the occurrence of intussusception. This is proved by an extraordinary set of specimens in the Museum of the Royal College of Surgeons, in which an abundant crop of glandular and papillomatous polypi grew from the mucous membrane of stomach, duodenum, jejunum, and ileum. The patient, a man aged 21, died after an operation for intussusception induced by a cluster of polypi in the jejunum. (W. Collier.)

There are reasons for believing that intestinal warts sometimes behave like cutaneous warts and disappear spontaneously. The most serious features in their clinical history are these: They simulate colic cancer, but are more chronic and set up recurrent attacks of pain, diarrhœa, and bleeding from the bowel, anæmia, and loss of weight. Diagnosis is established by the sigmoidoscope. Multiple papillomas are sometimes associated with cancer, and may be the forerunners of cancer. In these grave matters they agree with warts on mucous and cutaneous surfaces generally. An example of cancer of the œsophageal region of the stomach in association with multiple polypoid adenomas has been reported by Stewart (1913). The common age for intestinal papillomas is from the fifteenth to the thirty-fifth year.

Common situations for multiple polypi are the rectum and colon, especially the pelvic colon, and in this situation they are discoverable by the sigmoidoscope. In several instances long lengths of the colon have been successfully excised for this condition.

In the Middlesex Hospital (September, 1900) I excised from a German woman, aged 41, the whole of the pelvic colon (sigmoid flexure), which was crammed with luxuriant warts, set as closely as the bloom of a cauliflower. The lower end of the colon was closed with sutures and dropped into the pelvis, and the upper end implanted into the incision—permanent colostomy. She survived the operation eight years and died from intestinal obstruction caused by cancer.

In 1917 Ligat successfully excised the rectum and the colon as high as the splenic flexure from a man aged 36. It was beset with warts (Fig. 5). This man died two years later from acute pneumonia.

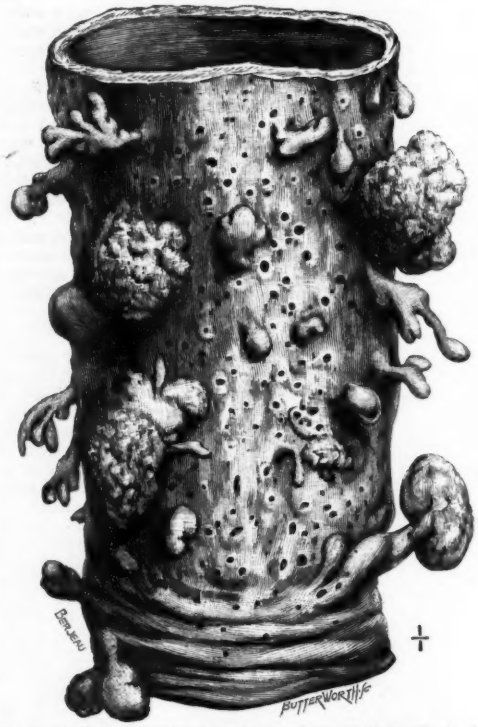

FIG. 5.—Cylinder of colon inverted to show multiple polypi. The mouths of the intestinal glands are conspicuous. Ligat's case. (Museum, Middlesex Hospital.)

Lockhart-Mummery excised, in 1918, the cæcum and colon (29 inches in all) from a spinster, aged 24, for multiple polypi, and joined the cut end of the ileum to the stump of the pelvic colon, and subsequently cleared the rectum of polypi with the aid of a sigmoidoscope. This woman was in satisfactory health two years afterwards.

Polypi are uncommon in the stomach. Breschet (1817) described one that grew from the mucous membrane near the œsophageal orifice and had a pedicle 6½ inches long; this allowed the head of the polypus to pass through the pylorus; it lay in the first part of the duodenum after death. The subject was a woman aged 69. Peter Thompson found a remarkable specimen in a woman, aged 75, a dissecting-room subject. A polypus that grew from the margin of the pylorus and adjacent part of the duodenum was involved in an intussusception which had dragged the pylorus and the first part of the duodenum into the second part of the duodenum. The mucous membrane covering the polypus contained gastric and duodenal glands.

Specimens of multiple polypi growing from the mucous membrane of the gastro-intestinal tract,

obtained in most instances from the post-mortem room, exist in all pathological museums. Surgeons are now supplying teaching collections with specimens obtained in the operating theatre. The value of such specimens is enhanced by complete clinical records and reports of microscopic examinations, without which many museum preparations are mere curiosities.

This lecture, in the main concerned with rarities, may be concluded with an example of a condition known as melanosis of the colon. Occasionally the mucous membrane of the large intestine from the ileo-cæcal valve to the anus is as black as ink. The specimen selected to illustrate this condition (Fig. 6) is an inverted

FIG. 6.—Cæcum and appendix turned inside out. The mucous membrane is charged with black pigment. From a woman aged 63. (Museum, Middlesex Hospital.)

cæcum with the vermiform appendix. The pigmentation begins sharply at the margin of the valve. In this instance the mucous membrane of the vermiform appendix is partially pigmented. Fortunately, the coloration is a curiosity and without sinister significance.

An instructive exhibition of fibroids, lipomas, and papillomas of the stomach and intestines was organised by Mr. Cyril Nitch and Mr. Herbert Paterson for the Surgical Section of the Royal Society of Medicine in May, 1920. The catalogue will be published in the Proceedings of the Society and should be useful to surgeons interested in the oncology of the gastro-intestinal tract.

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BONE-GRAFTING OF THE FRACTURED MANDIBLE.

WITH AN ACCOUNT OF SIXTY CASES.

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THE recent rapid progress in our knowledge of the bone-graft as a means of repair for the fractured mandible has been mainly due to the large number of such cases produced by the war. The transitory nature of this supply, and hence also of our opportunity for observing the results of surgical treatment, makes it desirable that accurate records should be kept of the results obtained by the methods so far attempted. I have, therefore, given as complete an account as space permits of the methods adopted and results obtained in all the cases with which I have so far dealt. In the pre- and post-operative dental treatment of these cases I have had the active coöperation of Mr. B. Mendleson, and the results obtained owe much to his judgment and skill.

Analysis of Results.

The cases now described are 60 in number. All but three are gunshot fractures and all were operated upon at the Queen's Hospital for Facial Injuries, Sidcup. They are consecutive and unselected cases, and represent all the bone-grafts I had done up to the end of 1919. In two cases the graft was lost owing to sepsis. Erysipelas accounted for one of these and a discharging ear, not noticed prior to operation, apparently accounted for the other. In one case sinus formation resulted in non-union, and the eventual absorption of the graft. This case has since been regrafted. In another case the graft, which extended from molar to molar region, is healthy and the wound soundly healed, but union has not yet occurred at either end. In the remaining 56 cases, 93 per cent. of the series, firm bony union has been obtained. 51 of the cases had edentulous posterior fragments, and in 40 of these the loss of bone involved the region of the angle. In 16 of the latter the loss involved the ascending ramus also.

General Principles of Technique and Treatment.

The graft was obtained from the crest of the ilium in all but the first two cases. This source has several advantages. The size of the graft is practically unlimited. All sclerosed and doubtful bone can, therefore, be freely removed from the jaw fragments. The soft and vascular nature of the iliac crest greatly facilitates the manipulation of the graft and its subsequent union and consolidation. Furthermore, it is possible by varying the position on the crest to obtain a graft of a general curvature suitable to each particular case. There is a complete absence of post-operative disability, even when the anterior superior spine has been removed with the graft. The cases were, as a rule, up and about 14 days after the operation, and in no instance has there been any complaint of the hip.

The aim, in every case, has been to obtain a sound carpentering junction between the graft and the jaw fragments, the bones being so trimmed that they fit end to end with accurate apposition of the largest obtainable areas of exposed vascular bone tissue. In this position they are firmly wired together. This technique was originally adopted in order to control the edentulous fragment and to facilitate early union by accurate and continuous apposition of opposed bone tissue. The technique has the additional advantage that it allows of the early exposure of the graft to the stresses incidental to muscular movement without risk of disturbing the close contact of bone tissue obtained at the time of operation. That this early stress is a factor in determining rapid union was only gradually recognised as a result of the impracticability, in the great majority of the cases dealt with, of obtaining rigid post-operative immobilisation by means of splinting. Where no teeth are present on the posterior fragment the rigid splinting of the larger tooth-bearing fragment to the upper jaw does not relieve the grafted area from all

muscular stress. Yet it was found that in over 60 per cent. of the successful cases union was of ivory hardness at the end of three to four months. In several of the cases, in which no effective control existed for either fragment from the time of the operation onwards, rapid bony union nevertheless resulted. (Case 50, Fig. 12, Cases 51 and 52.) Union was already fairly firm at the sixth or eighth week.

Experience has, therefore, led me to regard the chief rôle of the dental splint as being the maintenance of correct occlusion during the operation. The tendency to lingual deviation of the large fragment can be subsequently prevented by the interlocking of the splint when in closed bite or by means of a flange. The preponderance of edentulous fragments, far from being a stumbling block, was a factor in the success obtained, in that they prevented me from obtaining the rigid immobilisation I had proposed adopting as a routine measure. In order, however, that this early exposure of the grafted mandible to stress may be a factor in determining rapid union, it is important that it shall not involve any disturbance of the apposed bone tissue —that is, the "carpentering" at the time of the operation must be sound. A poor mechanical junction which allows of the subsequent movement of the bones upon one another will result in non-, or long-delayed, union unless rigid immobilisation by splinting can be obtained.

Pre-operative Treatment.

The interval between the original injury and the bone plastic has averaged 15 months. In some cases the period was considerably longer, while in a few a successful bone-graft operation was performed as early as five months after the injury. Pre-operative treatment has consisted in the elimination of sepsis, the extraction of teeth involved in the fracture or tending to cause malposition, the correction of the latter, and, finally, the immobilisation of the jaw fragments. At least three months has been allowed to elapse between the last visible indication of sepsis and the operation, and the same rule has applied to the extraction of teeth involved in the fracture.

The main factors producing malposition are defective dental occlusion, unopposed muscular action, and scar contraction. When both fragments bear teeth the usual deformity is a combined lingual roll and deviation, the free ends of the bones being drawn together, partly by muscular action, partly by scar contraction; while faulty occlusion of molar teeth has caused the fragments to rotate till the lower teeth may come to lie horizontally in the oral cavity. In the case of the toothless fragment the presence of teeth in the upper jaw impinging upon the gum causes the fragment to shift outwards into the cheek, in which position unopposed muscular action elevates it to the outside of the maxilla. As far as the tooth-bearing fragments are concerned, early splinting in correct occlusion will prevent these deformities. In the case of the edentulous fragment, however, this prolonged splinting of the opposite side has the effect of causing a progressive contracture of the unopposed muscles. Deformity can be equally well prevented by making the necessary dental extractions and then providing the toothed fragment with a flange to prevent lingual deviation. In cases treated in this way the toothless fragment shows little or no deviation and elevation. If these deformities are present it is to a relatively slight extent and readily overcome. (Mendleson.)

The inward roll, if markedly developed, cannot be corrected. The teeth may be used for splinting, and are then removed to prevent further deformity. The mesial approximation in the slighter cases can be corrected by continuous elastic traction. In severer cases, however, division of the intervening fibrous tissue and forcible separation are needed, a procedure which has so far invariably resulted in the mouth cavity being opened submentally.

In a few cases an effort was made to depress the edentulous fragment by means of a saddle carried as a detachable extension of the splint. Pressure ulceration was avoided by affixing the saddle very shortly before the operation, and removing it soon afterwards. This is liable to throw a heavy strain upon the graft. Moreover, the presence of a saddle at the time of operating prevents the complete exposure of the jaw stumps. (Fig. 13, Case 57.) The practice has been, therefore, to take the posterior fragment in its position of rest, however elevated, and to rely upon firm fixation to the graft for its post-operative control. One effective of this elevation, as Sir Frank Colyer has pointed out, is greatly to reduce the size of the gap to be filled by the bone-graft.

After previously acquired malposition has been, as far as possible, corrected, interlocking double "Gunning" splints are cemented on and bolted together in closed bite the day before the operation, and, in the majority of the cases, only removed from three to four months later.

Operative Technique.

The incision varies according to the position and extent of the fracture. For a loss of moderate extent in the region of the body of the mandible, it is placed well below the lower border of the jaw with a gentle convexity directed downwards. When the angle and ascending ramus are also involved, this incision is carried farther backwards below the ear, the convexity now being upwards. In this way an excellent approach is obtained to all parts of the ascending ramus, without risk of injury to the facial nerve. When the loss of bone extends farther forwards the incision is extended anteriorly with the same gentle sweep below the mandible and then, in the symphysis region, is carried sharply upwards, across the lower border of the jaw close to the middle line. In this way none of the depressor anguli oris branches of the facial nerve are caught, and a slight but nevertheless disfiguring palsy is thereby avoided. Fig. 1 shows this incision and its relation to the facial nerve and underlying mandible. In cases with a short symphysis loss, an adequate exposure is obtained by utilising the anterior portion of the above incision on either side; an inverted "Y" being produced, the stem of which lies in the middle line directly over the symphysis. For larger mesial losses a simple transverse incision is used, which passes horizontally across the neck, well below the lower border of the mandible on either side.

The jaw fragments are first exposed along their lower border and the soft parts separated from both surfaces with a raspatory, the length of bone exposed being determined by the extent of the obvious sclerosis. If teeth are present in the neighbourhood of the fracture, or if a saddle is in position on the posterior fragment, the exposure of the alveolar border is impossible, and extreme caution has then to be used in approaching this region. The oral cavity tends to pouch out between the fragments, often to a considerable extent, and as the tissue in this region is almost invariably scarred, it is wiser to leave a considerable mass projecting into the wound and shape the graft accordingly than to attempt too close an approach to the mouth cavity.

By means of gouge forceps [1] all sclerosed and doubtful bone is removed and the stumps suitably trimmed for fixation to the graft. They are then drilled as near as practicable to their upper border, care being taken to protect the deeper tissues lest the drill should enter the mouth, an accident which will render advisable the postponement of the operation. Pieces of tempered silver wire about 6 inches long are passed through each drill hole and their ends separately secured and held out of the way by forceps.

The fixation of the fragments in the case of the fractured mandible, due to the need for maintaining correct dental occlusion, accounts for much of the difficulty of bone-grafting in this region. Even in the case of the toothless posterior fragment the movement possible is a very limited one in an arc about the condyle. The graft has therefore to be cut accurately to fit the gap left between the jaw fragments on the completion of trimming. To facilitate this a piece of lead sheeting about 4 in. by 1 in., and stout enough to stand ordinary handling without distortion, is so cut and twisted that its ends lie evenly along the long diameter of the jaw "facets" and the sheet itself approaches these in a plane perpendicular to that of the facet. (Fig. 4.) This latter point is one of considerable importance, for it gives the plane of the short diameter of the facet, and thus enables the graft to be so cut that it is in accurate apposition throughout its thickness, and not merely along its outer edge, with the jaw fragments.

In the simpler type of case, when the jaw fragments lie more or less in the same plane, and their trimmed ends approximately face one another, the graft can be cut from the crest, shaped and drilled ready for wiring into the gap, with no other assistance than the lead template described above. When, however, the relation of the jaw fragments to one another is more complicated, it is impossible to cut the graft accurately by means of this template alone. In such cases a second or "check template" is used. (Fig. 5.) This is prepared from the first while the necessary transfer of the scene of operation to the hip is being arranged. In all essentials this second template constitutes a replica of the gap to be filled, the distance apart of the jaw fragments, the relative planes in which they lie, and the exact inclination of their trimmed ends to one another. The graft, cut with the aid of the first template, is placed against the check template. (Fig. 7.) If the fit is then found to be imperfect, the necessary alterations can be at once determined with an accuracy which would be wholly impossible were this test made in the wound itself.

In cutting the graft the template is so placed alongside the exposed crest that the future lower border of the graft corresponds to the free border of the crest, a portion of the latter being

[1] In the earlier cases I experimented with Albee's electrical saw, and with various types of hand saw, but none of these gave the precision of action, ease of manipulation, and freedom from injury to surrounding tissues which can be obtained by the use of gouge forceps. Chisels are contra-indicated on account of the risk of displacing the splints and of the strain they throw upon the teeth.

selected which possesses a curvature suitable to the particular case. A cut with the hand saw is then made across the crest, with an inclination in all directions corresponding to one end of the template. A steel strip is then slipped into the saw cut in order to facilitate holding the template, while a second cut is made in a position and at an angle corresponding to the other end of the template. (Fig. 6.) When, as is frequently the case, the two facets incline at an angle to one another, care has to be taken that the actual length of the graft is also correct. Fig. 6 shows the manner in which the template and steel strip are used in determining the plane for the second saw cut. The necessary measurement for the total length of the graft is indicated on both crest and template by a dotted line. The graft is now drilled at either end, the holes being placed close to the free border of the crest—that is to say, the future lower border of the graft. When it is not possible to use the whole thickness of the crest the latter is split with a chisel, the inner or outer portion alone being used. The graft is now removed with chisel and mallet. As this division determines the shape of its upper border regard must be paid to the amount of tissue to be accommodated between the jaw fragments. Throughout the cutting and drilling of the graft the latter remains attached to the ilium. Only when it is ready to be wired into position is it severed from the latter. The manipulation of the graft and the time occupied in the transfer to its final position are thus reduced to a minimum.

When the fracture involves the angle the posterior fragment, although thin, is often of considerable vertical extent, a narrow and elongated facet for apposition to the graft being the result. The latter is cut accurately to fit this elongated facet and the soft medullary tissue lightly gouged out so as to form a long and shallow groove (Fig. 8), into which the thin posterior fragment fits, embraced on either side by the slightly projecting compact bone of the graft. In this position the wiring holds the fragments beyond all possibility of subsequent displacement.

When the fracture involves the ascending ramus the atrophy seen in the region of the angle becomes more marked. The higher the loss extends, and the longer the period which has elapsed since the original injury, the thinner and more brittle the bone that is left. Fig. 9 (Case 30) shows an adaptation of the foregoing technique for dealing with such a condition.

When the loss extends anteriorly into or beyond the canine region it is impossible, owing to the curvature of the jaw, so to trim the fragment that the facet for apposition with the graft looks even approximately towards the posterior fragment. The more anteriorly the loss extends, the more does the trimmed end of the jaw tend to face outwards. The sclerosis, which is always a marked feature of the anterior fragment, owing to the obliteration of its nutrient artery in the infra-dental canal, invariably extends further along the lower border of the bone than elsewhere. The effort to remove all trace of this condition usually results in the trimmed surface of the jaw stump facing obliquely downwards as well as outwards. (Fig. 10.) Fig. 2 shows the mode of cutting the graft in order to obtain a facet of sufficient breadth in this position. The anterior superior spine is exposed and an oblique saw cut through this, in a plane determined by the template, gives the facet for apposition with the anterior fragment.

In cases of extensive mesial loss involving not only the symphysis region but also part of each horizontal ramus, it is difficult to obtain a sufficient "bow" on the graft to accommodate the considerable mass of tissue intervening between the two jaw stumps, and to carry the chin and dentures out to anything like their normal position. A further difficulty is due to the inward rotation of the fragments. The first difficulty is surmounted by taking the whole of the anterior superior spine with the graft, the spine being retained or removed according to individual cosmetic requirements. (Fig. 3.) The second difficulty is got over by making the ends of the grafts correspond, the one with the thickening found at the junction of the middle and anterior thirds of the crest, and the other with the thickened bone lying directly above the anterior inferior spine. In this way broad areas are obtained at either end of the graft, and although the long axis of these facets cross those of the jaw facets often almost at a right angle, a very considerable area of vascular bone tissue remains in apposition.

The trimmed and drilled graft, on removal from the crest, is tested against the check template and at once transferred to the jaw wound. The wires, issuing from the deep aspects of the jaw fragments, are threaded through the corresponding holes in the graft and the latter slid down into position between the jaw fragments. If the technique has been successfully carried out the fit should be good, and no further alteration or adjustment needed. The graft is held firmly in position while the wires are given two or three turns upon one another and the ends cut short. No care has been taken to preserve the periosteum of the graft or of the jaw fragments, nor is any attempt now made to bring periosteum over the junction. Great care must, however, be taken that neither periosteum nor other soft tissue is allowed to intervene between

TABULAR ANALYSIS OF THE SERIES OF GRAFTED MANDIBLES.

Cases.	Months between inj. & op.	Nature of union obtained.	Weeks after op.	Loss of bone.	Teeth in post. frag.	Remarks.
1	24	Bony.	40	M 1 to Pm 1.	0	Pedicle slide graft.
2	10	,,	24	M 2 to C.	0	Osteo-periosteal from tibia.
3	8	,,	25	A to Pm 1.	0	This and all remaining cases were free grafts from ilium.
4	16	,,	31	A to Pm 1.	0	Very faint spring at 17 wks., patient "eating anything."
5	10	,,	24	A to M 1.	0	Union probably earlier.
6	16	,,	24	As R to C.	0	Faint spring only at 12 wks.
7	16	,,	27	A to Pm 1.	0	,, ,,
8	18	,,	23	M to Pm.	0	No earlier observation.
9	6	,,	21	Pm 1 to I 1.	2	On removal of splints.
10	9	,,	24	As R to Pm.	0	
11	5	,,	21	As R to C.	0	,, ,,
12	12	,,	16	A to Pm 2.	0	,, ,,
13	12	,,	18	A to Pm 2.	0	,, ,,
14	4½	,,	20	A to C.	0	,, ,,
15	14	,,	15	Pm 2 to I.	0	,, ,,
16	12	,,	25	As R to M 1.	0	Greater part graft removed as sequestrum 4 wks. after op. Firm union; all sepsis disappeared.
17	7	None.	—	As R to M.	0	Sinus formation and graft absorbing. Since regrafted.
18	17	Bony.	15	A to C.	0	On removal of splints.
19	6	,,	14	M to I.	1	,, ,,
20	14	,,	18	As R to Pm.	0	Double rib-graft at Millbank, November, 1918.†
21	8	—*	—	M to Pm.	0	Erysipelas shortly after op. Graft infected and removed.
22	25	Bony.	21	Pm.	1	Due to blow from rifle.
23	8	,,	17	A to Pm.	0	Due to fall. Union on removal of splints.
24	7	,,	15	As R to C.	0	On removal of splints.
25	7	,,	9	A to Pm.	0	Sinus over graft ceased discharging some time after union.
26	15	,,	12	A to Pm.	0	On removal of splints.
27	24	,,	10	M to I.	1	,, ,,
28	13	,,	27	As R to C.	0	Slight spring on removal of splints.
29	35	None.	—	1. M 1 to r. M 3.	1	Soundly healed, spring still present both ends.
30	21	Bony.	24	As R to C.	0	Union at ant. end in 11 wks.‡
31	10	,,	14	A to C.	0	On removal of splints.
32	14	,,	13	M 2 to Op I.	1	
33	10	,,	20	As R to Pm	0	,, ,,
34	19	,,	14	As R to Pm	0	,, ,,
35	10	,,	42	As R to Pm	0	Loss of asc. ramus almost to sig. notch. Splinted in open gap owing to edent. upper jaw. Much loss of skin, wound gaped, sepsis followed, loss of greater part of graft as sequestrum.
36	14	Bony	42	A to Pm.	0	Mouth entered during op.; sinus formation and delayed union.
37	8	,,	12	A to Pm.	0	On removal of splints.
38	22	,,	17	M to M.	2 r. 1 l.	,, ,,
39	12	,,	15	M to I.	1	,, ,,
40	14	,,	15	M to C.	0	Ivory union on removal of splints. Aged 38, looked older.
41	16	,,	19	A to Pm.	0	Pedicle slide regrafted from ilium.
42	15	,,	—	Pm to C.	1	Fragments separated 3 mths. prior to op.; submental drainage to oral cavity resulted; sinus formation; delayed union.
43	53	,,	17	A to Pm.	0	On removal of splints.
44	16	,,	—	A to Pm.	0	Firm union post. in 8 wks., ant. fragment sclerosed. Resulting non-union has been regrafted (Fig. 11).
45	10	,,	14	As R to M 1.	0	On removal of splints.
46	12	Slight spring.	14	As R to C.	0	Eating ordinary food; cracks nuts without discomfort.
47	15	Bony.	12	C to C.	—	On removal of splints. Teeth present.
48	17	,,	21	M to Op C.	0	Faint spring on removing splints.
49	12	,,	11	A to Pm.	0	On removal of splints.
50	16	,,	17	Pm 3 to Pm 3.	1 r. 1 l.	Splints loose from op. onwards; removed at 8th wk. Very faint spring then present.
51	12	,,	11	A to Pm.	0	On removal of splints. Splints opened; eating soft food from 6th wk.
52	22	,,	14	M to M.	0	No teeth on lower jaw.
53	25	—*	—	A to I 2.	0	Copious discharge 2 days after op. Suppurating ear not noticed previous to op.
54	18	Bony.	20	Pm to Op I.	1 M.	Attempt to approx. and plate fragments (at Millbank) had failed owing to sepsis.
55	32	,,	16	A to C.	0	On removal of splints.
56	11	,,	12	Pm to Pm.	—	On removal of splints. Teeth present.
57	14	,,	14	M to C.	0	On removal of splints.
58	28	,,	15	As R to C.	0	Loss of skin over fracture made good by pedicle flap from neck prior to op.¶
59	16	,,	12	Pm to Op C.	0	Slight spring only at 10 wks. Splints then left open.
60	40	,,	16	As R to C.	0	On removal of splints.

—* Graft lost. † Right graft lost owing to sepsis. ‡ Rib B.G. attempted at Millbank and removed 24.5.18. ¶ Two previous attempts (both at King George's), first from tibia, second from iliac crest, failed owing to sepsis.

A, angle. As R, ascending ramus. I, incisor. C, canine. Pm, premolar. M, molar. r, right. l, left.

FIG. 1.

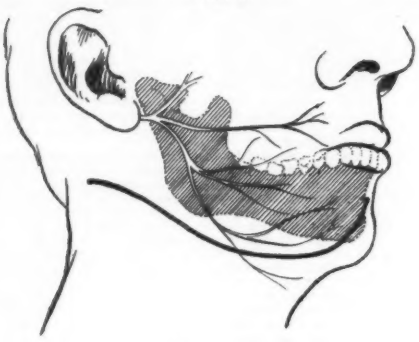


FIG. 2.

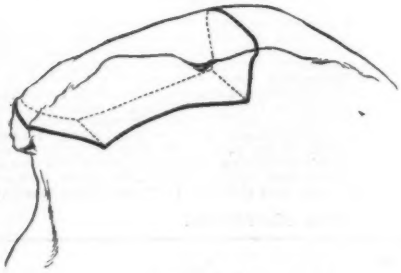


FIG. 3.

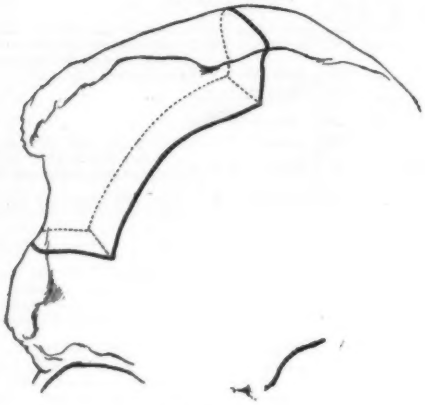


FIG. 4.

FIG. 5.

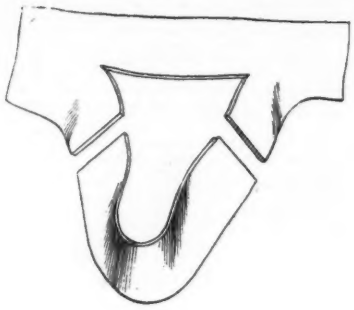


FIG. 6.

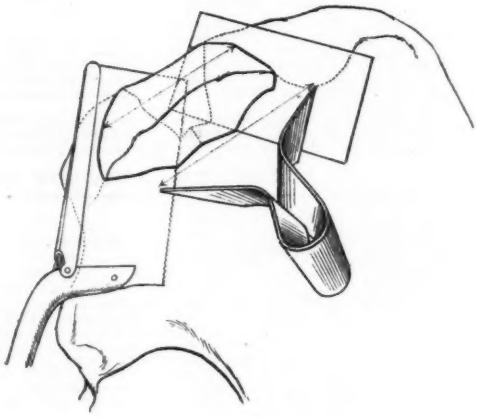


FIG. 7.

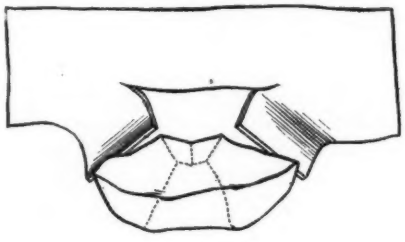


FIG. 8.

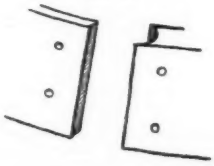
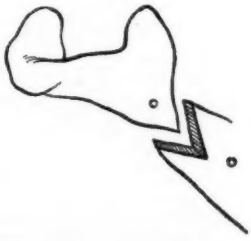


FIG. 9.



For descriptions of Figures see opposite page.

FIG. 10 (Case 25).

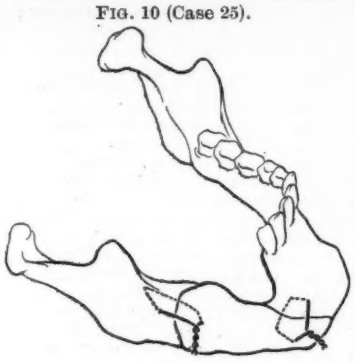


FIG. 11 (Case 44).

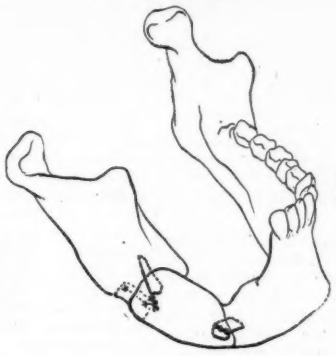


FIG 12 (Case 50).

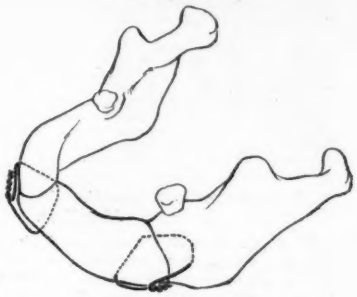


FIG. 1.—Diagram showing the relation of the incision to the branches of the facial nerve and the underlying mandible.

FIG. 2.—Portion of ilium utilised when the facet on the anterior fragment is in the canine region, and unavoidably trimmed to face downwards and outwards. The corresponding facet on the graft is obtained by the oblique saw-cut through the anterior superior spine seen on the left of the diagram.

FIG. 3.—Portion of ilium utilised for extensive mesial loss. Considerable "bowing" can thus be obtained, while the thickened region at either end allows a considerable area of opened bone tissue to be in apposition with the trimmed end of either ramus.

FIG. 4.—The lead "template," showing the manner in which it records the relationship of the trimmed jaw stumps to one another.

FIG. 5.—The same template as in Fig. 4 and the "check template" made from it.

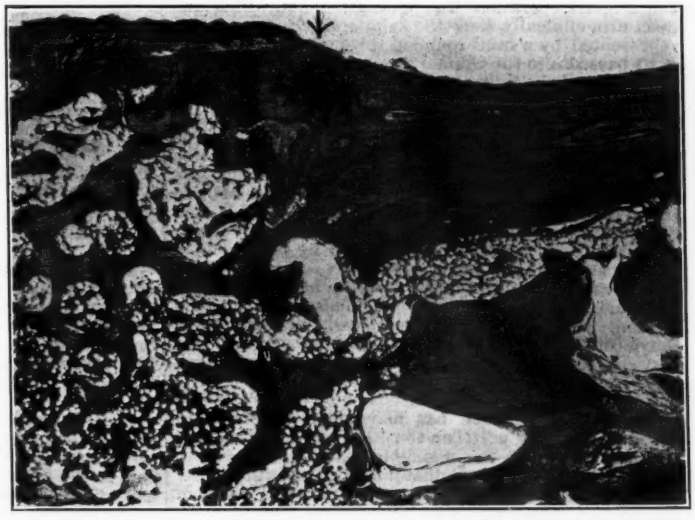
FIG. 6.—Mode of using the template. The graft to be cut is outlined as a transparency. A sheet of thin steel has been slipped into the saw-cut on the right, and against this one end of the template is being held. The saw is shown in position in the second cut, its direction being determined by the other end of the template.

FIG. 7.—Mode of testing graft against the check template.

FIG. 8.—Mode of trimming the thicker graft to embrace the thin posterior fragment.

FIG. 9.—A modification of this technique for very small posterior fragments—e.g., Case 30.

FIG. 11A.



Microphotograph of the area X.....X in Fig. 11 (× 15). The section shows the line of junction between graft (left) and post fragment of jaw (right) six months after operation. A continuous layer of compact bone passes from the surface of the thinner jaw fragment to that of the thicker graft. There is a sudden transition from the compact structure of the jaw to the cancellous structure of the graft, no intermediate zone being present. There is no sign of absorption and redeposition in the graft. The arrow placed above the section marks the line of junction.

FIG. 13 (Case 57).

FIG. 14 (Case 28).

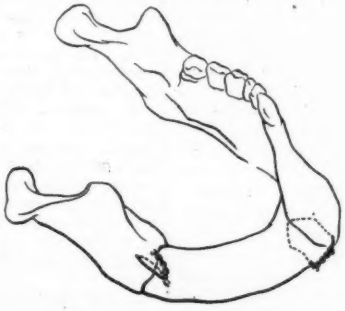
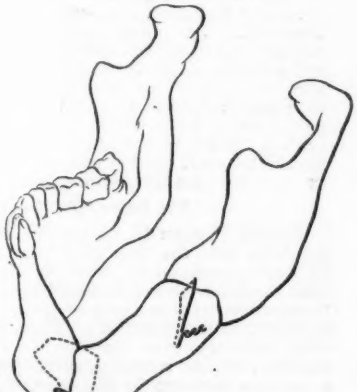


FIG. 15 (Case 24).



FIGS. 10, 11, 12, 13, 14, and 15 are semi-diagrammatic reconstructions of some of the grafted mandibles. They have been made for me by Mr. Hornswick from information supplied by radiograms, some of them stereoscopic, and by the lead templates. The size and position of the graft and jaw fragments are correct and follow as closely as possible the radiograms; the Mercator-like projection of the more outlying parts of the photograph has, however, been eliminated. The diagrams show the character of the "carpentering" employed, but do not show the nature of the union obtained.

the apposed bone surfaces. In no case has it been possible to attribute sepsis to the presence of the wire, and successive radiographs entirely fail to suggest that the wire in any way inhibits bone formation.

The wound is closed, when practicable, in two layers, deeper tissues, muscle, fascia, or maxillary gland being all drawn together over the graft with deep catgut sutures, not merely to serve as an additional covering between this and the skin flap, but also, and mainly indeed, in order to obliterate all spaces round the graft. The closed incision is finally painted over with tinct. benzoin. No dressing or drainage-tube is used. A careful watch is, however, kept for the first few days, and any serum or blood collecting is drawn off through a small opening by means of a Bier's suction glass; this process being repeated, if necessary, on successive days.

Permanence and Functional Value of the Grafted Mandible.

The permanent character of the repair effected by the bone-graft can only be determined by the lapse of time. In some of the cases in the present series more than a year has elapsed since the operation, and the only change shown in successive radiographs is one of progressive consolidation. In Case 44 a fibrous union had resulted owing to failure to remove all the sclerosed tissue from the anterior fragment. At the operation for resecting and regrafting this non-union, six months after the original operation, the posterior union, which had been firm clinically since the splints were removed, was represented by a faint rounded ridge where the thicker graft passed into the thinner posterior fragment. Both the graft and the ridge marking the line of union showed a hard smooth surface exactly resembling that of the adjacent jaw fragment. A small piece, indicated by dotted lines in Fig. 11, was resected for examination. During its removal the vascularity of the graft was found to be in every way as good as that of the adjacent jaw fragment. A microphotograph of a section of this fragment in the direction of the line X.....X is seen in Fig. 11 A. This section is in complete agreement with the X ray appearance presented by the union in other cases. It is often possible to recognise the uninterrupted passage of the bone architecture of the graft into that of the mandible. This is particularly striking when viewed stereoscopically and stands in sharp contrast to the fibrous union, however firm this may be clinically. In Case 26 this contrast is seen side by side on the same horizontal ramus. The radiograph shows the spontaneous union as a white line of fibrous tissue which has undergone no change in appearance. The graft, on the other hand, has merged so completely with the mandible that it is difficult to see exactly where the original junction was situated.

In determining the subsequent functional value of the grafted mandible there are several factors to be taken into account, besides the permanent character of the graft and its bony union. The prolonged disuse results in a weakness of the muscles of mastication and the same cause greatly increases the normal periodontal sensitiveness. That these, however, are not permanent conditions is shown by the nature of the diet of some of the patients within a few months of the operation. By the method adopted for obtaining the graft, the upper or alveolar border is constituted by open cancellous tissue. Successive radiographs show that under the influence of the stress and strain to which the graft is subjected in the normal use of the jaw the architectural structure becomes modified in accordance with Wolff's law, and a compact layer of bone is formed completely encircling the central tissues of the graft. In several cases I have found the graft able to bear directly the pressure of a denture within a few months of the operation.

The Fate of the Free Graft.

General opinion is, on the whole, tending towards the view that the free graft remains alive and takes an active osteo-genetic share in the union. The graft, with its thin tables of compact bone, is relatively more transparent in the earlier post-operative radiographs than is the far denser mandible. There is, however, no constant post-operative increase in this relative transparency. On the contrary, successive radiographs show a uniform increase in the opacity of the graft. The small area of vascular tissue exposed in the case of many of the posterior fragments, and the dense and relatively avascular nature of the anterior fragment, taken in conjunction with the large size of many of the grafts, make it very difficult to imagine that the latter owes its rapid consolidation, wholly, or even mainly, to invasion and replacement by osteogenetic tissue from the mandible. The behaviour of the graft in the presence of sepsis is even more suggestive. In Case 16, in which the graft was of considerable size, there was extensive suppuration after the operation. A month later a large sequestrum came away. Union nevertheless occurred at both ends, and a subsequent radiograph shows the upper or alveolar border of the graft, together with the whole of its anterior portion, still in position and firmly united at either end. All sepsis has since disappeared, and the final result is excellent. That we are not dealing with an involucrum is, I think, shown by the appearance of the anterior end of the graft, with its close fit to the jaw fragment and the wiring still in position. The view that the sequestrum was thrown off by the living graft is supported by three other cases in which small sinuses over the graft closed after the separation of one or more small sequestra from the latter, without leading to its infection, or in any way interfering with the progress of union. In one case sepsis has resulted in the infection of the graft. The appearance of this case, with the entire absence of any attempt at union and the irregular rarefaction of the graft, stands in striking contrast to that of the other cases.

I have only seen one case in which dead bone, a boiled autogenous graft, was used. The graft remained sterile and the wound healed by first intention. Months afterwards, however, there was still no trace of union, or of any invasion of the graft by bone tissue from the jaw fragments, and successive radiographs unmistakably show the graft undergoing progressive absorption.

Summary.

The series consists of 60 consecutive cases of bone-grafted mandibles. Of these all but two were free autogenous grafts from the ilium. 51 possessed edentulous posterior fragments and in 40 of these the loss involved the region of the angle. In 16 of the latter the loss involved the ascending ramus also. Firm bony union was obtained in 56 of the cases, 93 per cent. of the series.

The graft and jaw fragments were so trimmed as to fit accurately end to end, with the largest obtainable areas of exposed vascular bone tissue held in close contact by firm wiring. The close apposition results in early bony union, while the firm fixation allows of the bones being subjected at once to some degree of muscular strain without fear of displacement, thus leading to the early consolidation of the primary union. In over 60 per cent. of the successful cases the union was of ivory hardness on the final removal of the splints, three to four months after operation.

Note.—The favourable influence of early exposure to stress is strikingly shown by seven cases grafted while the above paper was in the press. The splints in each case were removed in the second or third week, and in one case within three days of the operation, a flange being fitted to prevent lateral strain upon the graft. Four of these cases were firmly united within the month, and the remaining three were firm before the end of the third month. In two cases in which union was secured within the first month a previous bone graft (not by the author) had been attempted and failed. In one of these the loss involved the greater part of the ascending ramus. In only one case did the posterior fragment bear teeth, one molar tooth being present on each fragment. The splints in this case were, however, loose from the time of the operation onwards. In one case no teeth were present on either fragment, and there were only two teeth in the upper jaw.

PORTSMOUTH AND SOUTHERN COUNTIES EYE AND EAR HOSPITAL.—At the annual meeting of this hospital held in the Town Hall, Portsmouth, on June 24th, it was reported that the new wing erected in 1914 had been paid for. The general financial position was one for anxiety. There was a decrease in the current revenue, a deficit on the year's work of £398, and a bank overdraft of £751.

THE PARATYPHOID "C" BACILLUS AS A CAUSE OF PARATYPHOID FEVER.

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(Bacteriological Investigations in Macedonia, 1916–17–18.)

IN 1916 Professor Ludwig Hirschfeld, bacteriologist-in-chief to the Royal Serbian Army, isolated by blood culture a bacillus which, for reasons about to be defined, he labelled "Paratyphoid C." The patients from whom the organism was cultivated were suffering from "enterica," but no known bacillus of the enterica group was isolated and no serological confirmation was obtained. Professor Hirschfeld considered that the organism was distinct from the known paratyphoid bacilli isolated from the Serbian soldiers suffering from enterica, and he decided to add this bacillus to his preventive vaccine. In December, 1916, a vaccine was prepared in his laboratory at Sedes which contained *B. typhosus* and paratyphoid bacilli A, B, and C, and *V. choleræ*. This vaccine was employed in the Serbian army for preventive inoculation in 1916, 1917, and 1918. In December, 1916, a bacillus was obtained by blood culture from a Serbian soldier at an Anglo-Serbian hospital suffering from enterica, and as it was found to be atypical it was sent to one of us (L. S. D.) for further investigation. This organism proved to be a strain of the para. C bacillus. An antiserum which was prepared with this strain of para. C corresponded to the para. C antiserum supplied to us by Professor Hirschfeld, and the organisms were in all respects similar.

It was decided to prepare a para. C antigen for the laboratories in Macedonia similar to those employed for the typhoid and paratyphoid A and B reactions at the Central Laboratory, and also a supply of para. C antiserum. At subsequent periods this organism was isolated by blood culture from Serbian soldiers (6) in Anglo-Serbian hospitals, and further strains were obtained from the fæces of Serbs and others (10) who were suffering from severe diarrhœa or enterica. The organism was not isolated by us or our co-workers from the urinary tract. It is now known that, in addition to typical enterica, the *B. paratyphosus C* may give rise to infective conditions, such as severe diarrhœa, broncho-pneumonia, and general sepsis.

Castellani,[1] in an article on typhoid infections in the "Adriatic-Balkan Area," refers to a number of "atypical or mixed enterica infections." He states that six strains were isolated with the cultural characteristics of the *B. paratyphosus B*, but serologically distinct, and three strains culturally similar to the paratyphosus A, although distinct serologically.

Archibald, Hadfield, Logan, and Campbell,[2] in their report on the diseases affecting the troops in the Dardanelles, state that out of 147 cases of enterica, 21 were due to *B. typhosus*, 41 to *B. paratyphosus B*, and 70 to *B. paratyphosus A*, while 15 inagglutinable para. A strains and 14 para. B were also obtained.

Kennedy,[3] in an article in the *Journal of the R.A.M.C.*, reports that in 1914 at the Enteric Convalescent Depôt at Naini Tal he found five inagglutinable strains by blood culture, resembling *B. paratyphosus A* or *B.*

Macadam,[5] Mackie and Bowen[4] isolated a bacillus in Mesopotamia which appears to be identical with the *B. paratyphosus C* of Hirschfeld. Macadam[5] isolated this bacillus from 7 cases by blood culture, and on 2 occasions post mortem (1 from lung and 1 from bile).

Mackie and Bowen[4] isolated the para. C bacillus from 12 cases, 10 from the blood stream, 1 from the urine, and 1 from the liver. The authors state that the paratyphoid C bacillus does agglutinate with some samples of antiparatyphoid B serum to low titre, and also that the para. B co-agglutinins are removed from the para. C antiserum by the para. C bacillus. Macadam noted on several occasions zones of inhibition of agglutination with the para. C reaction. Neukirch[6] while working with the German Army refers to his findings in Turkey. He cultivated from the blood, urine, and fæces, bacilli allied to the paratyphoid B. bacillus, but serologically distinct. Although he does not give the name para. C to these organisms, it is probable from his results that some of his strains were identical with the bacillus of Hirschfeld. On clinical evidence some of the cases were typical enterica, others were dysenteric in character. Dienes and Wagner[7] also obtained similar findings to those recorded by Neukirch.

Garrow[8] has published a case recently of a paratyphoid C infection which occurred in East Africa. The patient presented the clinical features of a typical enterica infection. The paratyphoid C bacillus was recovered from the blood stream and the patient's serum contained specific agglutinins for this organism. No paratyphoid B agglutinins were present.

Fatal Cases.

We were able to obtain details of two cases of fatal para. C infection in the Balkans, although other cases no doubt occurred.

CASE 1.—Macedonian labourer. Investigated by Captain J. Anderson, R.A.M.C. *B. paratyphosus C* was isolated by blood culture from this patient who was profoundly ill with "enterica," and subsequently died. At the autopsy the spleen was found to be much enlarged, very soft, and congested. There was no intestinal ulceration, but marked patchy congestion of the intestinal wall.

CASE 2.—A Macedonian woman was admitted to hospital at Vodena, and died on the eighteenth day after a severe illness. This patient was diagnosed clinically as enterica. No malarial parasites were found in the blood film, and the cerebro-spinal fluid was normal in all respects. An agglutination reaction on the thirteenth day of the disease gave a $\frac{80}{8000}$ reaction to para. C, while two days later it reached $\frac{120}{8000}$, but no reaction occurred with the typhoid, para. A, or para. B antigens. No further observations were possible, as the patient was many miles away from a British unit.

Agglutination Reactions Obtained in Macedonia.

Captain Anderson, bacteriologist to an Anglo-Serbian Hospital, made the following observations:—

He examined the blood of 104 patients for evidence of typhoid and paratyphoid A, B, and C agglutinins with the antigens supplied by us. Of these patients, 11 were British, 9 French, 58 Serbians, and the remainder included the "mixed bag" of people met with in the Balkans.

Only 2 out of a total of 58 Serbians gave a reaction to the para. C antigen. In the first case the Serb had been inoculated against the enterica group one month previously with Hirschfeld's mixed vaccine and gave a reaction of $\frac{80}{8000}$ for para. C, $\frac{80}{15000}$ for typhoid, and $\frac{80}{10000}$ for para. A, but no para. B reaction. In the second case the Serbian soldier had been inoculated against the enterica group one year previously, and showed a $\frac{95}{5000}$ reaction to para. C, a slightly greater typhoid and paratyphoid B reaction, but none to para. A. Further, although 8 cases gave a reaction of 1 in 100 or over with our typhoid antigen, and one case to $\frac{1000}{8000}$ with the para. B, there was no reaction at the lowest limit with the para. C antigen.[9]

To elucidate further the question of degree of response to the para. C portion of the quadruple vaccine this organism was embodied in the vaccine to be employed for the inoculation of 20 volunteers amongst the Bulgar prisoners, while the remainder received the triple vaccine. The blood of each man was tested for his agglutination response to typhoid, and para. A, B, and C before inoculation, and again ten days later. The local and general effects of the quadruple vaccine were considerable in many cases, while in all a definite local reaction occurred. In five cases pyrexia exceeded 100° F. on the second day after the inoculation, but in two of these men it was probably malarial in origin.

[1] Castellani: Typhoid and Allied Infections in the Adriatic-Balkan Area, Ann. Med. Nav. and Colon., 1916, November-December, vol. ii., pp. 453-461.

[2] Archibald, R. G., Hadfield, G., Logan, W., and Campbell, W.: Reports on the M. and H. Laboratories, dealing with the diseases affecting the troops in the Dardanelles, R.A.M.C. Journal, June, 1916, vol. xxvi., pp. 695-724.

[3] Kennedy, J. A., Lieutenant-Colonel, R.A.M.C.: Inagglutinable Paratyphoid Bacilli (Paratyphoid C) in India, R.A.M.C. Journal, August, 1918, vol. xxxiii., p. 190.

[4] Mackie, F. P., Major, R.A.M.C., and Bowen, G. T., Captain, R.A.M.C.: Note on the Characters of an Anomalous Member of the Paratyphoid Group met with in Mesopotamia, R.A.M.C. Journal, August, 1919.

[5] Macadam, W.: An Account of an Infection in Mesopotamia due to a Pacillus of the Gaertner Paratyphoid Group, R.A.M.C. Journal, August, 1919.

[6] Neukirch, Paul: Uber Menschliche Erkanshungen derch Bazillen der Glasser-Voldagsengruppe in der Turkie, Zeitsch. für Hygiene und Infektions, 1918.

[7] Dienes, L., und Wagner, Richard: Über Paratyphus B-infektionen, Zeitsch. für Hygiene und Infektionskr., 1918.

[8] Garrow, R. P.: A Case of Paratyphoid "C" Fever in East Africa. THE LANCET, June 5th, 1920.

[9] It is a matter of considerable difficulty to obtain reliable information concerning preventive inoculation among the Serbian soldiers.

In every instance enlargement and tenderness of the axillary glands occurred.

Agglutination Response.

It will be seen from Table I. that of the 20 Bulgars whose blood was tested before inoculation 10 gave a $\frac{50}{15000}$ reaction to the typhoid antigen, and 1 a $\frac{100}{15000}$, while only 3 reacted to the para. A antigen, one of them to the extent of $\frac{200}{10000}$. No reaction occurred with the para. B antigen, and in only one instance with the paratyphoid C. The agglutination response, therefore, to the paratyphoid antigens was feeble or entirely absent. No evidence was obtainable as to whether these men had been inoculated previously with a triple vaccine, although they had received a typhoid vaccine some months previously.

The inoculation of our quadruple vaccine excited an active response to the T. A and B antigens, but a C reaction occurred in only one instance (Case 2); here a reaction of $\frac{50}{5000}$ was obtained before inoculation, which rose to $\frac{100}{5000}$ ten days after the injection of the vaccine. In two instances a B reaction of $\frac{1000}{8000}$ was produced, but no C reaction was obtained.

The same strain of para. C bacillus was employed for the preparation of the vaccine and antigen.

TABLE I.—*Agglutination Response to One Dose of Quadruple Vaccine in Bulgarian Soldiers.*

Case.	Agglutinin response before inoculation.				Agglutinin response 10 days after inoculation.			
	T.	A	B	C	T.	A	B	C
1	50	0	0	0	200	100	0	0
2	50	200	0	50	50	300	0	100
3	0	0	0	0	100	100	50	0
4	100	0	0	0	100	100	50	0
5	50	50	0	0	50	100	50	0
6	0	0	0	0	50	50	0	0
7	0	0	0	0	200	50	50	0
8	0	0	0	0	—	—	—	—
9	50	0	0	0	50	100	0	0
10	0	0	0	0	0	50	100	0
11	50	0	0	0	100	100	0	0
12	50	0	0	0	200	100	0	0
13	0	0	0	0	100	100	50	0
14	0	0	0	0	100	100	200	0
15	0	0	0	0	100	50	1000	0
16	50	0	0	0	200	50	100	0
17	0	0	0	0	50	50	50	0
18	50	0	0	0	50	50	200	0
19	50	0	0	0	50	50	50	0
20	50	50	0	0	200	200	1000	0

End-point of antigens, typhoid, 15,000; A, 10,000; B, 8000; C, 5000.
Note: 0 = 1/25, no reaction.

These agglutination reactions with the Bulgar prisoners agreed with our findings obtained with the Serbian soldiers, and may serve as an explanation for the absence of a reaction in the latter, although we had believed them to be inoculated with Hirschfeld's mixed vaccine. It must be remembered, however, that it was possible to test the agglutination reactions among the Bulgars on one occasion only after the injection of the vaccine, as they were required for military purposes. Further, the highest agglutination reaction observed among the cases of para. C infection by us was $\frac{500}{5000}$.

Animal Inoculations.

A rabbit was inoculated subcutaneously with 50 million of each organism in a quadruple vaccine, nine days later with 100 million, and again eight days later the dose was repeated. The agglutinin response is tabulated in Table II.

TABLE II.—*Rabbit Inoculated Subcutaneously with T. A B C Vaccine.*

T.	A	B	C	
0	0	0	0	... Before inoculation.
		50 Million T. A B C Subcutaneously.		
$\frac{100}{15000}$	$\frac{100}{15000}$	$\frac{50}{5000}$	$\frac{200}{8000}$	... 9 days after first inoculation.
		100 Million T. A B C Subcutaneously.		
$\frac{800}{15000}$	$\frac{400}{15000}$	$\frac{400}{5000}$	$\frac{1000}{8000}$	... 8 days after second inoculation.
$\frac{1600}{15000}$	$\frac{800}{15000}$	$\frac{800}{5000}$	$\frac{1000}{8000}$	... 9 days after third inoculation.

A second rabbit was inoculated subcutaneously with 10 million of each organism employed in the quadruple vaccine, and seven days later with 20 million, but a similar agglutination response was obtained as shown in Table II.

The two rabbit experiments just referred to show that these animals give a response to each member of the quadruple vaccine when the immunisation has been obtained with large or average doses.

TABLE III.—*To Show the Agglutinin Content of Immune Rabbit Sera Titrated with our Standard Antigens as Used in the Above Experiments.*

Serum.	Antigen.	Agglutination end-point.	Serum.	Antigen.	Agglutination end-point.
Para. C	Para. C	$\frac{8000}{8000}$	Para. A	Para. B	$\frac{1600}{15000}$
Para. C	Para. B	$\frac{400}{8000}$	Para. A	Para. C	$\frac{0}{15000}$
Para. B	Para. B	$\frac{8000}{8000}$	Typhoid	Typhoid	$\frac{15000}{15000}$
Para. B	Para. C	$\frac{800}{8000}$	Typhoid	Para. C	$\frac{800}{15000}$
Para. A	Para. A	$\frac{10000}{10000}$	Typhoid	Para. B	$\frac{0}{15000}$

Cultural Tests.

Every strain of para. C tested by us has shown the same cultural reactions, and, further, these reactions have remained constant in stored laboratory cultures.

The organism is a motile Gram-negative bacillus. It ferments glucose, mannite, maltose, dulcitol, and sorbite with gas production, while cane sugar and lactose remain unchanged. Litmus milk is first acidified, the medium gradually returns to neutral point, and finally is rendered alkaline in three to four days. No strain which we have investigated has produced indol.

Since the above observations were made in Macedonia we have further investigated the serological reactions of the para. C bacillus and compared its antigenic properties with the other members of the enterica group of organisms. Rabbit antisera have been prepared and the reactions to the enterica group, including the para. C bacillus, have been studied. Three types of vaccines were employed: (1) heat-killed, (2) formol-killed, and (3) vaccines grown in 1 per cent. dextrose [10] and killed with formalin. Para. C. vaccines have also been employed for the inoculation of men who offered their services, and the antigenic properties were observed in these healthy individuals, many of whom were ex-soldiers and whose sera contained typhoid and para-typhoid (A and B) agglutinins.

Methods of Preparation of Vaccines.

The vaccines employed by us in these investigations were made as follows:—

1. *Heat-killed vaccines.*—A 24-hour agar culture of this organism was emulsified in normal saline, filtered through fine linen, and heated to 56° C. for one hour. The vaccine was then placed in the ice chest, and later tested for sterility. Suitable dilutions of the emulsion were made with saline containing 0·25 per cent. carbolic acid.

2. *Formalin-killed vaccines.*—A 24-hour agar culture was emulsified in normal saline and filtered as above. To the emulsion 0·1 to 0·14 per cent. of formalin was added and the emulsion placed in the ice safe till sterile. Suitable dilutions were made as above.

3. *Acid dextrose vaccines.*—Organisms were grown in 1 per cent. dextrose in peptone water and the tubes were incubated for 24 hours. The acidified medium was centrifugalised and the supernatant fluid discarded. The deposit of organisms was diluted with saline containing 0·1 to 0·14 per cent. of formalin and treated subsequently as in method 1.

Some of the volunteers received one type of vaccine only, and others one type followed by another. Rabbits were also inoculated with the vaccines and the agglutinin response tested.

The antigens used were made as follows:—

The organism was subcultured daily for 10 days to obtain an active growth. Agar flasks were inoculated with the tenth subculture, and the flasks were incubated for 24 hours. The growth was washed off with 0·1 to 0·14 per cent. formol saline. The emulsion was filtered and placed in the ice chest till sterile. The antigen was diluted to standard, i.e., 1000 million bacilli per c.cm., and 0·25 per cent. carbolic acid added. The end-point of agglutination is expressed as a fraction, the numerator denoting the highest dilution in which agglutination occurred, the denominator being the end-point of the antigen on its homologous antiserum. Our methods for the agglutination reactions were constant, and we followed in certain details the technique recommended by Dreyer. The tubes were incubated at 55° C. for two hours, and the readings taken after half an hour at room temperature.

The *absorption tests* were carried out as follows:—

To one volume of the serum diluted to 1 in 10 with normal saline a creamy, thick emulsion of the absorbing bacillus [11] was added in three doses, i.e., one half and two quarter

[10] This vaccine will be called subsequently in this paper the "acid dextrose vaccine."

[11] These emulsions were approximately of the same strength.

volumes, at intervals of three hours, and incubated at 55° C., unless otherwise stated. After nine hours the tubes were placed on the ice overnight. The treated emulsions were centrifugalised and the test performed on the supernatant clear fluid. A control saline and serum tube was heated together with the emulsions.

Agglutinin Response of Rabbits to Injections of the Para. C Bacillus.

A rabbit was inoculated intravenously with a formol agar vaccine of the para. C bacillus, and the response is recorded with the dosage in Table IV.

TABLE IV.—*Intravenous Inoculation of a Rabbit with Formol Agar Vaccine of the Para. C Bacillus.*

Date of inoculation.	Dose.	Date of testing serum.	End-point of agglutination.
20/10/19	100 million	24/10/19	500/25000
24/10/19	250 ,,	26/10/19	10000/40000
30/10/19	500 ,,	3/11/19	20000/40000

This rabbit gave a rapid serum response 20000/40000, that is, to the end-point of the antigen.

This para. C antiserum was tested against the stock laboratory antigens, *B. typhosus* and *B. paratyphosus A, B,* and *C,* with the following results: A control tube containing normal human serum and the para. C antigen was also observed.

Typhoid antigen and para. C antiserum	...	0/20000
Para. A	,,	,,	,,	,,	...	0/20000
Para. B	,,	,,	,,	,,	...	0/20000
Para. C	,,	,,	,,	,,	...	20000/20000
Para. C	,,	,,	,,	normal serum		0/20000

From these results it will be seen that the para. C agglutinin is specific, as no reaction occurred with the typhoid or paratyphoid (A or B) antigens.

TABLE V.—*Absorption Test. Para. C Antiserum* 20000/20000, *Saturated with* B. typhosus *and Paratyphoid Bacilli A, B, and C.*

Antiserum.	Absorbing bacillus.	Titre after absorption.	Control saline serum.
Para. C.	*B. typhosus.*	12000*/25000	20000/25000
,,	*B. para. A.*	12000*/25000	20000/25000
,,	*B. para. B.*	12000*/25000	20000/25000
,,	*B. para. C.*	0/5000	20000/25000

* In all cases 1 in 15,000 dilution gave complete agglutination; the end-point was not obtained.

It will be seen from Table V. that no absorption of the "C" agglutinins followed the addition of the typhoid and the A and B bacillary emulsions. The effect of absorbing the stock para. B antiserum with emulsions of para. B and C showed that a B antiserum of 5000/5000 titre was completely desaturated by a para. B bacillus, while the para. C emulsion removed none of the para. B agglutinins.

It will be seen from the above-mentioned experiments that the other members of the enterica group absorbed none of the agglutinins from a para. C antiserum of high titre, and that the para. C bacillus absorbed none of the agglutinins from this sample of para. B antiserum. It is necessary, however, to realise that some para. C antigens have a definite B fraction, while apparently a B fraction may develop in a C antigen which was pure when the organism was first isolated.

We conclude that the para. B and para. C bacilli, although identical in fermentation reactions, are distinct bacteria as judged by serological reactions, as Professor Hirschfeld originally stated.

The agglutinin reactions and absorption tests with a para. C antiserum were tested against two strains of Gaertner bacilli and Aertrycke bacilli kindly supplied to us by Colonel S. L. Cummins, A.M.S., with the results shown in Table VI. It will be seen from this table that the paratyphoid C strain has apparently no relationship with the Gaertner or Aertrycke group of bacteria, as in no case was any agglutination or absorption phenomenon observed.

Sir Frederick Andrewes, to whom we are greatly indebted for showing us the results of all his investigations, has found that typical strains of suipestifer and para. C are identical serologically. We have tested the *original strain* of para. C isolated by Hirschfeld in 1916 with a standard strain of suipestifer furnished by Andrewes. On serological evidence the two strains are identical. Cultural differences with xylose, arabinose, and dulcite may occur with some strains of suipestifer and para. C. The results obtained by him would appear to us to be of the utmost importance epidemiologically.

TABLE VI.—*Agglutinin and Absorption Reaction of Five Bacteria on Para. C Antiserum.*

—	Agglutinin reaction.	Absorption reaction.
Para. C antiserum on—		
Para. C bacillus	20000/20000	250/25000
Gaertner, Bainbridge	0/20000	12000*/20000
Gaertner	0/20000	12000*/20000
Aertrycke, Newport	0/20000	12000*/20000
Aertrycke, Mutton	0/20000	12000*/20000

* The end-point of the reaction was not determined.

The Effects of the Injection of Multiple Vaccines Containing B. typhosus *and* B. paratyphosus A, B, *and* C *into Rabbits.*

Rabbits were injected with the quadruple vaccine subcutaneously and intravenously, as noted below. Three types of vaccines were employed: (1) heat-killed, (2) formol-killed, and (3) acid dextrose.

TABLE VII.—*To Show Results of Injecting Subcutaneously equally graduated Doses of Heat-killed Vaccines of* B. typhosus *and* B. paratyphosus A, B, *and* C.

Date of immunisation.	Dose.	Date of testing serum.	End-point of agglutination to—			
			T.	A	B	C
5/1/20	100 million	5/1/20	0/5000	0/6000	0/5000	0/20000
		8/1/20	0/5000	0/6000	0/5000	0/20000
12/1/20	200 ,,	12/1/20	50/5000	30/6000	50/5000	0/20000
19/1/20	500 ,,	19/1/20	200/5000	250/6000	400/5000	100/20000
		26/1/20	3000/50000	1000/6000	1500/5000	2000/20000

From Table VII. it will be seen that the agglutinin response was present to each component of the quadruple vaccine when the heat-killed vaccine was employed.

A similar experiment was carried out with the formol-killed vaccine, and in this instance, as in the case with the heat-killed vaccine noted above, a similar rise of agglutinins was noted. The quadruple vaccine was given in doses of 100, 200, 400, and 500 million at six-day intervals, and the agglutinin titre of the serum rose from zero to 1000/5000 with *B. typhosus,* 800/5000 with para. A, 800/5000 with para. B, and 800/25000 with para. C antigens.

TABLE VIII.—*To Show the Results of the Subcutaneous Inoculation of Rabbits with the Quadruple Acid Dextrose Vaccine.*

Date of inoculation.	Dosage.	Date of testing serum.	End-point of agglutination to—			
			T.	A	B	C
19/1/20	100 million	19/1/20	0/5000	0/6000	0/5000	0/20000
		26/1/20	0/5000	25/6000	0/5000	25/20000
30/1/20	200 ,,	30/1/20	25/5000	100/6000	25/5000	100/20000
7/2/20	400 ,,	12/2/20	100/5000	100/6000	100/5000	200/20000

A second rabbit was inoculated in this case intravenously with the quadruple acid dextrose vaccine, and the agglutinin response is recorded in Table IX.

TABLE IX.—*To Show the Immediate and Active Response Obtained with Quadruple Acid Dextrose Vaccine when Injected Intravenously.*

Date of inoculation.	Dosage.	Date of testing serum.	End-point of agglutination to—			
			T.	A	B	C
30/1/20	100 million	30/1/20	0/5000	0/5000	0/5000	0/25000
7/2/20	200 ,,	4/2/20	0/5000	100/5000	100/5000	200/25000
		11/2/20	100/5000	5000/5000	1000/5000	10000/25000

The difference in response is very marked, as shown in these two tables. In 19 days the acid dextrose vaccine given subcutaneously excited but a feeble response to all four

antigens, whereas the same vaccine given intravenously excited in 11 days a marked reaction with the paratyphoid strains, but not with the typhoid.

It was thought that this feeble response to the acid dextrose vaccine employed subcutaneously might be due to the absence of reaction in the tissues at the site of inoculation. Two further rabbits were inoculated subcutaneously—(a) with acid dextrose vaccine only, while (b) received 0·5 c.cm. of ether at the site of inoculation to ensure a tissue response. In Rabbit (a) the agglutinin reactions were again feeble, similar to the previous experiment referred to in Table VIII., while in the case of Rabbit (b) no advantage was obtained by exciting a marked local reaction by means of ether. Rabbit (a) subsequently received two injections of the quadruple formol-killed vaccine subcutaneously and Rabbit (b) one injection of acid dextrose vaccine intravenously, and in both cases a marked reaction to all four antigens occurred.

From these experiments it may be concluded that as an antigen for the preparation of typhoid and paratyphoid (A, B, and C) agglutinating antisera the heat-killed and formol-killed vaccines are of greater utility than the acid dextrose if the subcutaneous method of inoculation is employed, but the acid dextrose vaccine gives an equally good result if paratyphoid vaccines are injected intravenously.[12]

The Result of the Subcutaneous Inoculation of Man with Paratyphoid C Vaccines.

Over 30 volunteers have been inoculated subcutaneously with paratyphoid C vaccines. The highest agglutinin responses were obtained with the formol-killed vaccines. The inoculation dosage varied in amount, and the resulting serum reactions appeared to have no relationship with the number of bacilli injected. Thus, after a single dose of 250 million of the formol-killed vaccine, a titre of $\frac{1500}{20000}$ was obtained; in another instance, although 11 inoculations were given over a period of four months, seven of which contained 1000 million bacilli, the para. C agglutinins never rose above $\frac{400}{20000}$, while in other cases no reaction occurred. Two healthy men received two injections each of 250 and 500 million of a para. C vaccine at an interval of eight days. In one instance the titre of the serum to para. C rose from 0 to 1500 in four weeks, while in the other instance no response was effected in the same period. It would appear, therefore, that the agglutinin response to paratyphosus C in any particular individual is uncertain and may be altogether absent. These findings agree with our observations made on the Serbian soldiers, and on the Bulgarian prisoners in Macedonia.

Agglutination Response to the Inoculation of Formol-killed Paratyphoid C Vaccines.

Twelve men were inoculated with the formol-killed vaccine, and in all but two, in whom no response was excited, a marked agglutination reaction occurred. Local reactions were noted in a few of these cases. Four cases received a single injection of para. C vaccine, and the titres of the sera between the fourteenth and the twenty-first day day were 1 in 500, 1 in 800, 1 in 1000, and 1 in 1500 respectively, with an antigen of 1 in 20,000 end-point. Three men received two doses of vaccine at intervals of six to eight days, and after 15 days the response to para. C was 1 in 200, 1 in 300, and 1 in 1500 respectively. Of the three remaining cases one received doses of 500 and 750 million, and two 500 and 1000 million, at an interval of seven days, and the titres of the sera for C agglutinins were 1 in 300, 1 in 100, and 1 in 1100 respectively.

From the above experiments, in which formol-killed paratyphoid C vaccines were used, a definite agglutinin response occurred, but the dosage of the vaccine did not correspond to the agglutinin reaction in any way, as one man after three doses failed to respond, while a second, who received a single inoculation of 250 million, gave a reaction of 1 in 1500.

The Inoculation of Men with the Acid Dextrose Vaccine.

The result of subcutaneous inoculation of the acid dextrose vaccine was observed in 11 cases. In no instance was any local reaction observed, and with one exception, in which a slight para. C reaction was obtained previous to inoculation, the responses excited were feeble. In the case referred to, doses of 250 and 500 million were given, and at the end of three weeks a reaction of 1 in 1500 was obtained. In two cases in which 250 and 500 million bacilli were injected with a 5-day interval, no agglutinin response was obtained, while in eight instances the men received two or more doses varying from 250 to 1000 million, but only a very feeble agglutination reaction occurred.

It would appear, therefore, that the acid dextrose vaccines, when given subcutaneously in man, fail to excite any marked agglutinin response, and these findings are similar to those made in rabbits when this form of vaccine was used subcutaneously.

The Action of Heat on Human and Rabbit Paratyphoid C Agglutinins.

Seven human para. C antisera were obtained by the subcutaneous injection of paratyphoid C vaccine. Four of these antisera diluted to 1 in 10 with normal saline gave titres of 1 in 800, 1 in 1000, 1 in 1100, and 1 in 1500 respectively. These sera were heated for nine hours at 55° C., and when re-tested it was found that the end-points had fallen to 1 in 200, 1 in 200, 1 in 25, and 1 in 400 respectively. The three remaining para. C antisera, when diluted, were heated at 55° C. for six hours. The end-points of agglutination before heating were 1 in 150, 1 in 300, and 1 in 2000; after heating the end-points had fallen to 1 in 50, 1 in 200, and 1 in 800 respectively. It will be observed that in all cases the paratyphoid C agglutinins were reduced by heat at 55° C. In one experiment in which a sample of human antiserum was heated at 37° C. for nine hours a considerable loss of agglutinin content occurred. Two rabbit antisera were heated along with the human antisera at 55° C. for nine hours, but in one case a slight fall from 1 in 25,000 to 1 in 20,000 occurred, while in the other a fall from 1 in 1500 to 1 in 1250 resulted.

Thus the human paratyphoid C agglutinins appear to be partly thermolabile, while the rabbit para. C agglutinin is but slightly affected by heat.

Absorption of Paratyphosus C Agglutinins from Human Sera: Zonular Agglutination.

The sera of four men who had been inoculated subcutaneously with paratyphosus C vaccine, and in whom a good response was excited, were absorbed with emulsion of *B. paratyphosus C.* Before the absorption test was carried out, the titres of the sera were 1 in 800, 1 in 1000, 1 in 1100, and 1 in 1500 respectively. In all four cases complete removal of the paratyphoid C agglutinins resulted, but, as already stated, the thermolability of the para. C agglutinins in man must be fully allowed for, as we found that in the serum saline control tubes the titres of the sera had fallen very considerably.

The absorption tests were carried out with two of these antisera at 37° C., instead of 55° C., but it was found that the agglutinins were completely removed, as occurred at the higher temperature.

Zonular agglutination was noted in 3 of the 35 men inoculated with the para. C vaccines in London, but was not observed in any of our rabbit antisera. The three human sera above referred to gave agglutination readings as follows:—

(1) 1/25 = 0, 1/50 incomplete, 1/100 to 1/1000 complete, 1/2000 end-point of agglutination.
(2) 1/25 a trace, 1/50 to 1/100 complete, and 1/1000 end-point of agglutination.
(3) 1/10 = 0, 1/25 a trace, 1/50 and 1/100 complete, 1/1000 end-point of agglutination.

This phenomenon, which may give rise to fallacies when human antisera are under investigation, has also been referred to by Macadam[5] while working in Mesopotamia.

The Formation of Paratyphoid B Coagglutinins in the Sera of Persons Inoculated with B. paratyphosus C.

Many of the men who acted as volunteers for these investigations had served in the army and had been inoculated with the triple enterica vaccine. The sera of these men were tested for the presence of typhoid and paratyphoid agglutinins. As a result of these observations the men were divided into two groups: (1) those who gave no reaction, and (2) those in whom a para. B response was present with a para. B antigen of 1–5000 end-point.

Each group was inoculated with a formol-killed paratyphoid C vaccine with doses varying from 250 to 1000 million, and as a result it was found that some men of both groups showed a definite rise in the titre of the para. B agglutinins, while others failed to respond. This para. B agglutinin response was not dependent upon the amount of paratyphoid C vaccine injected.

Para. C Infection in London.

In March, 1920, the *B. paratyphosus C* was grown in blood culture from a case of enterica admitted to St. Thomas's Hospital. On March 18th a girl (M. N.), aged 12 years, was admitted under the care of Dr. C. R. Box, who has kindly permitted us to publish the following notes.

The patient had been ill for two days, suffering from headache, vomiting, and general malaise. She had a rigor immediately preceding admission. On admission the temperature was 102° F. and the pulse 112. No spots were seen. The spleen was enlarged and palpable. On March 21st the temperature reached 104°, and the patient was delirious. Pulse 132. Epistaxis occurred. The temperature lasted for six days after admission, and then fell to subnormal

[12] It must be noted that the para. C antigens prepared by us in London were considerably more sensitive than the typhoid and paratyphoid A and B, and that the results of the C agglutinin response must be considered with due regard to this factor.

and remained so throughout convalescence. Bowels were constipated throughout. A blood culture was made on March 22nd, and the serum was also collected. The blood culture in distilled water grew a Gram-negative motile bacillus, which gave the cultural reactions after seven days' incubation of the B and C bacillus.

The serum was tested on March 22nd and 29th and April 9th. On the first occasion against *B. typhosus* and *B. paratyphosus A* and *B* no agglutination occurred. The para. C reaction was also tested on the second and third occasions, but no reaction was obtained. This bacillus was not agglutinated by the patient's serum, and when tested with the stock typhoid and paratyphoid A, B, and C antisera gave the following results: T = O, A = O, B = $\frac{400}{1000}$, and C = $\frac{20000}{20000}$. The fæces were examined on four occasions, but the para. C bacillus was not recovered. No history was obtained of any relative having been in the East. The father, a soldier, had been in France, but had never suffered from any enterica-like infection.

Sir Frederick Andrewes has very kindly informed us of a case of para. C infection which occurred at St. Bartholomew's Hospital in 1919, in a man who had been in Mesopotamia. The organism was obtained by blood culture and from the urine. The case, however, was *not* enterica on clinical evidence.

In conclusion, we offer our thanks to Professor Hirschfeld, who supplied us with the original strain of the *B. paratyphosus C* in 1916, and to our various colleagues in the Balkans who assisted us with our observations, more especially to Captains W. J. Deadman and J. Anderson, R.A.M.C.

SYPHILITIC AORTITIS.

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WHILE working at the Ulster Volunteer Force Hospital with Dr. J. E. MacIlwaine I was greatly struck by the fact that the Wassermann reaction had been positive in all the cases which showed evidence of an aortic lesion, and I therefore have sent every aortic case met with at pensions boards to have a Wassermann test done. The result showed how important it is to have the blood examined in these cases. Of 25 cases met with in the hospital and at the boards only one gave a negative Wassermann. In this case there was a definite history of rheumatism in a young man and the aortic lesion was a stenosis, thus differing from the syphilitic type, which is never a true stenosis.

The Ætiology of Aortitis.

Any infection may cause aortitis, but the two most common are rheumatic fever and syphilis.

The relative age-incidence in these two diseases is important. In patients below 40 a fair proportion give a history of acute rheumatism. The recruiting for the war showed that a considerable number of aortic lesions had a rheumatic history, while in recent pensions work the great majority of cases point to a specific infection. There is often great difficulty in making a definite diagnosis as to cause, especially where syphilis is denied and a Wassermann test is negative. The post-mortem room is a great teacher, and often upsets a clinical diagnosis, as recent work by Warthin[1] has proved. He has shown that spirochætes are present in the aorta, aortic valves, and even in the myocardium in a great many cases in which a clinical diagnosis of syphilis had not been made.

The history of rheumatic fever does not exclude the possibility of a coexisting syphilitic lesion. For instance, one of Dr. MacIlwaine's cases in the U.V.F. Hospital gives a history as follows:—

Pensioner, age 33. Rheumatic fever in January, 1916. Discharged from the army in June, 1916, with V.D.H. In June, 1917, he contracted syphilis, and received very inadequate treatment. He was admitted to hospital on Jan. 1st, 1920, with a history of dyspnœa and attacks of sudden, sharp, stabbing pain across the upper part of left chest at intervals varying from two weeks to two months; occasional fainting turns; great feeling of alarm and dread. On examination the heart was found slightly dilated. No increase in cardiac dullness in aortic area. A rough presystolic with accentuated first sound in mitral area. B.P. 130 – diastolic 96. X ray showed a normal aorta and the "pear-shaped" type of heart. Wassermann was ++ with both Harrison's and Fleming's technique, which positive result, accompanied by pain, dyspnœa, and great depression, led one to suspect an early aortitis in addition to a rheumatic mitral lesion.

Syphilitic Aortitis.

This may be acute or chronic. Cases have been published where well-marked symptoms and signs have been present within two years of the primary lesion, and one case is on record where the aorta ruptured three months after the primary sore appeared.

In the majority of the cases the aortitis is of a much more chronic nature, and has been latent for a number of years, a sudden exacerbation of the lesion drawing attention to its nature. The majority of cases in the U.V.F. Hospital come into this chronic type. Syphilis has almost always been denied at first, probably due to the fear of loss of pension, and partly to the fact that the men thought they were completely cured because no signs have been seen for many years.

McCrae and Adami[2] divide arteries into two types—the elastic and the muscular. The aorta and its main branches are of the former type, and this elasticity is of the greatest importance. The aorta receives the first impulse of the blood wave, and is subject to sudden expansion. The elastic fibres, alternating in the media with the muscle fibres, are needed both to prevent undue distension and to bring the vessel back to normal. The change in this middle coat is the important one in syphilis, as it interferes with the contractile and expansile power of the aorta.

The ascending and transverse portion of the aorta are specially susceptible. Some attribute this to the infection being carried by the vasa-vasorum, a theory which also accounts for the frequent involvement of the cerebral arteries. Another theory is that the spread is a lymphatic one, and the first part of the aorta, containing a large number of lymphatics, is most frequently affected. These lymphatics follow the vasa-vasorum, and account for the perivascular infiltration. The change is principally in the media, and is of a chronic inflammatory nature. The tunica adventitia is also involved, producing a connective tissue overgrowth. Intimal changes are secondary and also show a connective tissue hyperplasia. If the weakening of the media is slow, the secondary thickening of the intima counteracts the strain, and the dilatation, if present, is slight; if change in the media is rapid the wall may give way, with formation of an aneurysm. Dilatation may be either local or generalised, and depends partly on the strength of the aortic wall and partly on the internal pressure.

Non-syphilitic arterio-sclerosis differs from the syphilitic type both in distribution and in the coat affected. In the former the patches are usually seen at the orifices of the aortic branches, especially the intercostals, and the change is primarily an intimal one, often with calcareous deposits. In the latter the patches are usually transverse, bear no relationship to emergent vessels, have a puckered appearance, and are usually secondary to a mesaortitis.

The aortitis arising from acute rheumatism, streptococcal infections, and so forth, tends to subside as the primary lesion improves. In syphilis the lesion is progressive unless vigorous antisyphilitic treatment is carried out, and even then it is very refractory to treatment. The aorta is one of the most frequent sites of latent syphilis; Warthin demonstrated active lesions of the aorta in every case of latent syphilis examined.

The lesion usually leads to a dilatation of the aorta, either general or localised. The aortic insufficiency is often attributed to a relative incompetence following the aortic dilatation, but the finding, by the Levaditi method, of spirochætes in the aortic tissues shows that the insufficiency is an organic one, and, as is usual in syphilis, the change is one of dilatation due to sclerosis of the valves. According to Mix[3] syphilis never causes an aortic stenosis.

The specific change may involve the heart muscle, leading to all the symptoms of a myocarditis. Two of the cases that died in the U.V.F. Hospital showed well-marked signs and symptoms of myocarditis. There was a post mortem on one case, and the heart showed myocarditis. Spirochætes were not looked for, so the specific origin was not proved.

Symptoms.

Early diagnosis of these cases is important. Advanced cases of aortitis, with definite, well-formed aneurysms, show usually the signs and symptoms of the latter. The symptoms and signs of syphilitic aortitis are numerous. They are divided into those due to the actual lesion and those due to pressure, which latter are a late manifestation. Of the early symptoms, pain and dyspnœa are the most important, with, in addition, a peculiar, septic, sallow look, sometimes accompanied by fever.

The patients usually have a feeling of lassitude, depression, and dread. Pain in aortitis is referred to the upper end of the sternum, or beneath it, and is often anginal in character, radiating to the shoulder and arms, and either constant or intermittent. When referred to the apex it is generally due to an accompanying myocarditis. A characteristic feature of the pain is its occurrence during the night. Often there is merely a feeling of oppression about the heart or at the upper end of the sternum (one of the patients who died complained of a sudden "catch" at the root of his neck), and this

is usually accompanied by a feeling of alarm and dread. In certain cases the pain is referred to the epigastrium, and may lead to errors in diagnosis. Pain is a more prominent symptom in some patients than in others, and does not seem to depend entirely on the extent of the aortitis or on the amount of dilatation. The cause of the pain is, according to Sir Clifford Allbutt,[4] due to an involvement of the aorta, especially just above the sigmoid valves; the undue tension of the fibrous outer coat being the immediate cause.

The dyspnœa usually has a sudden onset without any exciting cause, or occurs after slight exertion or excitement. The chief difficulty is an expiratory one, and, like the pain, it is usually much more marked at night. A sudden onset of dyspnœa in a man above 40, without any definite exciting cause, should always make one suspicious of an aortitis. The peculiar, sallow, septic appearance is striking, and in pensions work I always send such a case to have a Wassermann done, the result in the majority of cases being positive.

Vertigo has not in my experience been a very troublesome symptom. It is attributed by some to a cerebral endarteritis and cerebral ischæmia, by others to perverted impulses from an abnormal aorta being conducted through vagus to the brain.

Physical Signs.

The physical signs are variable; in an early case there may be little or no evidence of an organic lesion of the aorta or heart.

Often the first sign is an accentuation of the second aortic with a diastolic shock on palpation. The second aortic may have a peculiar ringing, musical character, and which extends to the bruit if present. A systolic murmur is often present, and points, not to a stenosis, but to a dilatation of the first part of the aorta. Other physical signs are fullness of the veins of the arms, neck, and shoulders, pointing to some obstruction to venous return; marked visible arterial pulsation in neck; suprasternal pulsation, or pulsation in second right or left interspaces; tracheal tug. Percussion sometimes reveals an increased dullness in aortic areas, but this is often difficult to estimate correctly. The two most important diagnostic tests, however, are the Wasserman test and an X ray of the aorta.

The X ray shows either an increase in density of the shadow or a change in the contour. At least four different types have been described: (1) Elimination of the aortic knob. As the aorta turns to the left and downwards there is a small localised bulging called the "aortic knob." In a dilatation this becomes obliterated and the shadow is continuous. (2) Increase in aortic shadow to right, especially if the heart is not enlarged. (3) Uniform dilatation of the shadow. (4) Definite aneurysms.

In early cases the pathological process is usually limited to the first portion of the aorta, near the aortic valves, and at this stage the vessel is but slightly thickened, giving in an X ray merely a doubtful dilatation of the vessel in this region. As the aortitis develops we get secondary changes such as dilatation and hypertrophy of the heart.

Prognosis and Treatment.

The prognosis is bad, especially if there is any evidence of myocardial involvement; œdema is a very bad sign. The prognosis is often worse with a small than with a large aneurysm. Treatment is mainly antisyphilitic, though any cardiac symptoms have to be dealt with also. Pot. iodide up to 3ss. doses three times a day, with mercurial inunctions daily, have been used. Novarsenobillon in small doses, 3 gr. every ten days, has also been tried. Most of the cases showed some improvement, but, unfortunately, they are nearly all cases in which syphilis has been present for a number of years, and in consequence are very refractory to treatment.

Conclusions.

1. A Wassermann test should be done in every case of aortic disease.

2. Anginal pain is very frequently associated with an aortitis. The aorta, therefore, in every such case should be thoroughly investigated.

3. Cases of syphilis which are refractory to treatment are often found to have a specific lesion of the aorta.

4. Sudden fatal cases are often found, on post-mortem examination, to have died from a syphilitic aortitis.

I am greatly indebted to Dr. MacIlwaine for his kindness in allowing me to have access to the cases in his wards.

References.—1. Warthin, A. S.: American Jour. Med. Sci., 1916, cliii. 2. McCrae and Adami: Text-book of Pathology. 3. Mix: Medical Clinics of North America, vol. i., No. 5. 4. Allbutt, T. C.: Diseases of the Arteries.

Reviews and Notices of Books.

THE DIAGNOSIS OF NERVOUS DISEASES.

Fifth edition, revised and enlarged. By Sir JAMES PURVES STEWART, K.C.M.G., C.B., M.D., F.R.C.P., Senior Physician to the Westminster Hospital, &c. London: Edward Arnold. 1920. Pp. 584. 30s.

IT is some three years or more since we last reviewed Sir James Purves Stewart's text-book of "Diagnosis of Nervous Diseases," which appears now in a fifth edition. Some 10 or 15 new illustrations have been added, and the whole book revised and in part rewritten. It takes its place as an eminently practical compendium of neurological doctrine on both organic and functional sides, characterised by wealth of clinical observation and succinct embodiment of information gleaned from a minute knowledge of neurological literature. It is nothing if not up to date. Limited though its scope may appear, it furnishes the physician and student with a thoroughly sound and extremely readable presentation of neurological knowledge, and its popularity is abundant evidence of its usefulness.

THE NEW PSYCHOLOGY AND ITS RELATION TO LIFE.

By A. G. TANSLEY. London: Allen and Unwin, Ltd. 1920. Pp. 284. 10s. 6d.

SINCE the appearance, now many years ago, of McDougall's "Introduction to Social Psychology" no psychological work more fascinating or more important to the general public has appeared than this. Mr. Tansley endeavours to describe the development and advances of psychology within recent years and its application to the problems of life. The book is based mainly on the writings of Freud, Hart, Jung, and Trotter, but its author has the courage of his convictions and does not hesitate to differ from these authorities where he thinks fit to do so. The result is an exceedingly temperate and thoroughly trustworthy account of present-day psychology, for which a wide circle of readers can be confidently guaranteed. Few psychologists will agree entirely with the writer's views, but none will be found to deny their reasonableness and their sanity. A detailed or technical criticism of them would be out of place here. It will suffice to recommend the book wholeheartedly to the cultured reader who desires a fair presentation of the general position of modern psychology and of its bearing on human life.

NERVOUS AND MENTAL DISEASES.

Ninth edition, thoroughly revised. By ARCHIBALD CHURCH, M.D., Professor of Nervous and Mental Diseases in the Northwestern University Medical School, Chicago, &c.; and FREDERICK PETERSON, M.D., formerly Professor of Psychiatry, Columbia University, &c. London and Philadelphia: W. B. Saunders Company. 1920. With 350 illustrations. Pp. 949. 30s.

WE reviewed the last edition of this well-known American text-book in 1914, commenting favourably on its presentment of the subjects with which it deals, and on its excellent illustrations and format generally. The present edition contains many additional paragraphs derived from war experiences in neurology. We feel, on looking through the volume, that the chapters devoted to hysteria and the neuroses and psychoneuroses generally rather stand in need of modernising, and it appears unnecessary to give the morphology of the hysterical fit in such detail when comparatively little space is allotted to a discussion of the pathogenesis of hysterical symptoms. A section given to hypnotism is included under "Disorders of Sleep." Some of the rarer nervous diseases, such as torsion spasm, tuberose sclerosis, Alzheimer's disease, encephalitis periaxialis diffusa, do not appear to be mentioned. The volume, nevertheless, will continue, we think, to meet with that favourable reception which it has so long earned.

A MANUAL OF NEURASTHENIA (NERVOUS EXHAUSTION).

By IVO GEIKIE COBB, M.D., M.R.C.S., Neurologist, Ministry of Pensions; formerly Neurologist, Brinnington Section, Second Western General Hospital. London: Baillière, Tindall, and Cox. 1920. Pp. 366. 12*s.* 6*d.*

NOTWITHSTANDING the whittling down of the conception of neurasthenia by the disciples of the psycho-analytic school to the results of auto-eroticism in young people, nervous exhaustion exists to a somewhat larger extent than a perusal of their treatises might lead the student to suppose, and will continue to exist when teachers, if ever, have all become psychoanalysts and psychoanalysis is a part of the educational curriculum. If neurasthenia was rife enough in the nineteenth century to be called "American nervousness" or the "English malady" in the eighteenth, it is scarcely likely to have all but vanished in the twentieth. According to Dr. Cobb, it is on the increase. Our terminology or our nosological limit matters little, in fact, so long as we agree that neurasthenia is a syndrome or symptom-complex and not a disease per se. Neurasthenic symptoms of fatigue, mental and physical, with accompanying headache, insomnia, and subjective sensations of all sorts, with or without more obvious gastro-intestinal symptoms, are well known to every practitioner of medicine, who would fain find a panacea therefor if only to be himself saved from the neurosis. No amount of terminological juggling avails to preserve him from daily contact with neurasthenic reality. To all such we recommend Dr. Cobb's volume. With sound judgment he avoids extremes of ætiological opinion at the same time as he accepts symptomatological facts. And he will be blessed by the worried physician for having devoted almost one-half of his book to treatment.

FUNCTIONAL NERVE DISEASE.

An Epitome of War Experience for the Practitioner. Edited by H. CRICHTON MILLER, M.A., M.D., late Consulting Neurologist, 4th London General Hospital. London: Henry Frowde and Hodder and Stoughton. 1920. Pp. 208. 8*s.* 6*d.*

THE appearance of a symposium on "Functional Nerve Disease," contributed mainly by psychologists and psychotherapists, and edited by a psychotherapist, is doubtless a sign of the times. There are many "functional nerve diseases" not so much as mentioned in the volume, which deals almost entirely, one gathers, with hysteria. Though a section is entitled "The Anxiety Factor," Dr. Prideaux, in his contribution, restricts "anxiety neurosis," as opposed to "anxiety hysteria," to cases of physical origin, secondary to organic conditions of the viscera and endocrine glands, and declares they are not amenable to psychotherapy. Other psychopathologists, of course, disdain a somatic origin for any "anxiety" state whatever. "Neurasthenia" and "psychasthenia" do not find much favour with the contributors, but we learn a great deal about "conflict" and "adjustment," about "repression" and "regression." Dr. Crichton Miller, in his introduction, adopts the wholly commendable attitude that the psychical and the physical interact, and that to ignore either at the expense of the other is fatally obscurantist; despite which the work, as a whole, tends to ignore physical ætiology and physical symptomatology. We are not surprised, therefore, to find one contributor stating that "drugs should have no part in psychotherapeutics; tonics are unnecessary, the virtue of valerian is a superstition, a placebo is anathema, and the use of bromides not only rests upon heresy, but is physically and mentally harmful." From such iconoclastic comment let the practitioner turn back to another page, where he will find that "drugs are often of undoubted value; the bromides are used for their sedative effect in conditions of restlessness and general nervous irritability; strychnine and nox vomica are of value when exhaustion and fatigue are prominent symptoms," &c. It is but right to state, however, that the editor has been so well aware of the "conflict" among the psychotherapists themselves that he has asked Dr. William McDougall to make a critical summary in a final chapter, and this has been done with conspicuous fairness. In fact, without this last contribution the practitioner would be in a poor way towards understanding better what the war has really taught the psychologist. Considered individually, the contributions will be scanned with interest by the neurologist, who nevertheless may raise a mild complaint that the title of the book does not give an adequate clue to its contents.

PSYCHO-ANALYSIS.

A Brief Account of the Freudian Theory. By BARBARA LOW, B.A. Introduction by ERNEST JONES, M.D., M.R.C.P. London: George Allen and Unwin, Ltd. 1920. Pp. 187. 5*s.*

Miss Low's précis of Freudian lore is intended for those who have not time to study original authorities, and it embodies a useful presentment of the subject strictly from the viewpoint of the founder of the theory. The exposition follows lines with which the student of Freudian doctrine is, of course, familiar, and is given in simple language with useful illustrative instances. Miss Low, who is not, apparently, a member of the medical profession, speaks on various pages of "patients treated by myself," and thus the important point is incidentally raised to what extent ignorance of or indifference to psychotherapy on the part of the profession results in patients going to the unqualified for what they want. She repeats the stock tenet of the Freudian that the physician—Miss Low rather avoids the word and speaks almost invariably of the Analyst (with a capital)—must not be teacher, suggestionist, ethical adviser, and so forth, but simply a seeker after the patient's own discovery of himself; yet almost on the same page she talks of the analyst using the influence which he obtains over the patient, of his leading the patient to weave the disentangled threads into a new whole, and so on. The book concludes with a sanguine forecast of the probable social and educational results of psycho-analysis, among which, it seems, are to be numbered the transference of buildings once occupied as prisons into educational institutions, and the removal of repressive law and custom from their action in imposing penalties on impulse-freedom. Children, it appears, even infants, if of opposite sexes, will not share beds with each other, or bathe together, or be dressed or undressed in each other's presence, or, worst of all, sleep with their parents; yet, oddly enough, these will not be so apt to be "over-clean, over-nice, over-proper" in regard to the behaviour of the very young, but will allow them to "play freely with actual dirt of any kind they spontaneously find, and fully express their interest in their own bodily functions."

TREATMENT OF THE NEUROSES.

By ERNEST JONES, M.D., M.R.C.P., President of the British Psycho-analytical Society. London: Baillière, Tindall, and Cox. 1920. Pp. 233. 10*s.* 6*d.*

THE greater part of Dr. Ernest Jones's readable volume on the treatment of the neuroses is concerned with hysteria and its handling by the various psychotherapeutic methods at present in vogue—viz., suggestion, including hypnotism, re-education, and psycho-analysis, though physiological measures and the general management of hysterical cases are not ignored. He writes fairly and judicially of all methods, pointing out their advantages and disadvantages, but deals with psycho-analysis at greater length and with greater persuasiveness than in the case of any of the others. He has rather reversed the position formerly taken up by himself in regard to the treatment of mild cases of psycho-neurosis, apparently holding that they should have the most radical treatment of all—i.e., the psycho-analytic treatment—in order to avoid subsequent relapses and increasing psychotherapeutic difficulty. He has only heard of one case in which another method, the hypnotic, succeeded better than the psycho-analytic. It can thus be maintained that failures in psycho-analytic treatment are the result of insufficient psycho-analysis. Notwithstanding Dr. Jones's able advocacy of the surpassing

advantages of psycho-analytic measures, his argument is unconvincing that as he himself has had experience of the methods and obtained the best results with psycho-analysis it is most to be commended for general use. The physician equally with the psychotherapist must judge for himself which method to pursue, and whether any method can be pursued solely and strictly by itself.

THE NEW PHYSIOLOGY IN SURGICAL AND GENERAL PRACTICE.

Fourth edition, revised and enlarged. By A. RENDLE SHORT, M.D., F.R.C.S., Senior Assistant Surgeon, Bristol Royal Infirmary; Lecturer on Physiology, University of Bristol. Bristol: John Wright and Sons, Ltd. 1920. Pp. 291. 9*s.* 6*d.*; paper covers, 7*s.* 6*d.*

THE last edition was published just before the war and bore a slightly different title. This edition has undergone considerable transformation, and much of it is new. Into the chapter on "Food Deficiency Diseases" have been incorporated most of the newer observations on the growth factors and on neuritis, scurvy, and rickets. The section on "Researches on Blood" deals in detail with blood transfusion after severe hæmorrhage, with coagulation of the blood as the basis of an exact pathology of hæmophilia, purpura, and hæmorrhagic jaundice, with anaphylaxis, and with the therapeutics of calcium salts. An entirely new chapter on the heart, by Dr. Carey Coombs and Dr. Herapath, is devoted to the polygraph and electro-cardiograph and an analysis of the results obtained therefrom. The chapter on "Surgical Shock" has been entirely rewritten in the light of war experience. Before diagnosing shock, it is considered necessary to exclude or allow for considerable loss of blood, concussion of the central nervous system or thorax, and various forms of toxæmia. In shock the heart is not primarily at fault, the arteries and superficial veins are contracted, and if the blood volume is between 65–70 per cent. of normal, and the blood pressure below 90, the condition is grave. The experimental means of inducing shock-like conditions in animals are described, and useful practical information is given as to the best means for its prevention and treatment. Adrenalin is accounted dangerous; transfusion of saline solution or gum-saline is inferior, both theoretically and in practice, to blood transfusion, which is the best remedial measure in our armamentarium. The recent work on the functions of the stomach and intestines is dwelt upon in connexion with injuries, diseases, and operations on these organs. It would seem "that the colon is not a necessary organ." The remarks on the colon as an organ of absorption raise the whole question of feeding by nutrient enemata. "Feeding with nutrients composed of peptonised milk is sheer starvation, but better results may be obtained with enemata composed of dextrose and long-pancreatised milk."

War surgery and bone-grafting have revived the question of the growth of bone, and the observations of Sir William Macewen as to the regeneration of bone are given some prominence. Whatever view is accepted, the practical point is that, even if bone deprived of periosteum can survive and form a useful graft, the periosteum should always be preserved if possible. The obscure relation between growth of bone, the healing of ununited fractures, and certain endocrine glands is indicated. The necessity of a more extended study of the genital glands and of the endocrines is emphasised. To the surgeon the chapter on the immediate and remote poisoning by chloroform is suggestive and explanatory. The functions of the spinal cord and peripheral nerves are next considered and the diagnosis of lesions discussed. The chapter on localisation of function in the brain has been brought up to date. Both these chapters will prove useful to surgeon and physician alike.

We cordially commend a careful study of this volume to all who wish to keep pace with the modern advances in diagnosis and treatment, as illuminated by the "new physiology," and set forth by one of its most accomplished and earnest students.

SURGICAL TREATMENT.

By J. P. WARBASSE, M.D., F.A.C.S. London and Philadelphia: W. B. Saunders Company. 1920. In three volumes. With 2400 illustrations. Vol. II., pp. 829; Vol. III., pp. 861.

A REVIEW of the first volume, which deals with the principles of treatment, operations, infective surgical diseases, and the surgery of bones and joints, was published in THE LANCET of Feb. 1st, 1919. The part at present under review consists of Volume II., which is concerned with regional surgical treatment, and Volume III., covering the special treatment of the intestines, genito-urinary organs, and so forth; a small separate volume contains a combined index to the whole publication, additional to the index provided with each part. The work represents an endeavour to provide the surgeon with an account of all varieties of treatment that apply to all surgical diseases, clearly a very difficult undertaking; yet despite the difficulty of the task the result is on the whole satisfactory.

It is unlikely that any really complete work on such a large subject could be produced, even in three volumes of this size. There are necessarily omissions. For instance, in the chapter dealing with the surgical treatment of hernia, no account is given of the use of the filigree in the repair of specially weakened abdominal walls. Possibly the author regards this as an obsolete operative measure, though he makes several mentions of the use of silver wire as a suture in hernia cases. He considers that it should be replaced by the employment of fascial or other grafts, methods of which he gives only the briefest accounts. But the test of the worth of such a work is whether or no it is of practical use. Will the surgeon engaged in the treatment of any particular case refer to it with confidence? It must be admitted that some sections are inferior to others, and even the best are not entirely complete. On the whole, however, the book has a genuine value, and will be of special use to the surgeon of limited experience, who will find in it helpful descriptions of surgical procedures with which he may not be familiar. If he refer to it for advice concerning matters of which he has a wide practical knowledge he may be disappointed.

There are abundant illustrations, mostly good, much new work is described, and the text is well arranged for easy reference.

AIDS TO ELECTRO-THERAPEUTICS.

By J. MAGNUS REDDING, F.R.C.S. London: Baillière, Tindall, and Cox. 1920. Pp. viii. + 196. 5*s.* net.

ABOUT one half of this book is devoted to electro-therapeutics. Of the remainder, 47 pages deal with X ray therapeutics, and then follow short chapters on radium, photo-therapy, and electro-diagnosis. The book concludes with an index of treatment. A considerable amount of information is thus conveyed in this small volume. Common forms of apparatus and the methods of using them are described in some detail, while the theory discussed is confined to that necessary to explain the mode of action of X rays and electric currents in the treatment of disease. The chapter on electro-diagnosis deals almost entirely with paralysis due to nerve *injury*, and much more of it is devoted to the clinical than to the electrical side of the subject. The electrical examination of paralysis due to inflammatory lesions, one of the most important parts of medical electricity, is not considered. The diagram shown in Fig. 2 does not represent the alternating current on the main, and the account in Chapter VIII. conveys the idea that the sinusoidal currents used in medicine differ from those taken from the A.C. main. However, the descriptions are for the most part clear and easy to understand. The book will be of use to those who are reading for the higher examinations in medicine and surgery, and its contents will form a useful résumé of some of the subjects required for the recently established Diploma in Medical Radiology and Electrology.

ADVICE TO CONSUMPTIVES.

Second edition. By NOEL DEAN BARDSWELL, M.V.O., M.D., F.R.C.P., Principal Assistant Medical Officer, Public Health Department, London County Council, and Medical Adviser to the Insurance Committee for the County of London; late Medical Superintendent, King Edward VII. Sanatorium. London: A. and C. Black, Ltd. 1920. Pp. 153. 3*s*. 6*d*.

THIS book is prefaced by a short note by the late Dr. C. Theodore Williams. It consists for the most part of a series of lectures given by the author to patients at Midhurst. A methodical turn of mind has induced Dr. Bardswell to keep a note of every question about consumption asked him by his patients, and the work is a classified collection of his answers, written with the authority given by experience, and it contains information of value to that section of the lay public which can afford to follow the advice.

With regard to rest and exercise the author seems, on the whole, to belong to the "active" rather than to the "passive" school, and he believes golf to be the best game that the consumptive can take up when he is completely convalescent. He also considers bathing, especially sea-bathing, as beneficial to most patients. Cycling, too, he regards as permissible for the majority of patients, provided it is made a means to an end, not an end in itself. But cricket, tennis, ski-ing, and tobogganing are tabooed. Breathing exercises are also recommended, and smokers will be pleased to read that three pipes a day of good mild tobacco may be indulged in, provided there is no weakness of the throat. The managers of sanatoriums, catering rather for the amusement than for the health of their patients, might well study the author's remark that: "To go to a health resort and sit all day in a smoking room, playing cards, is not a good programme for the consumptive in search of health." A specially valuable section of this book is that which deals with emigration; the most important colonies and other places abroad are discussed from the point of view of the prospective consumptive emigrant.

The author's views as to risk of infection show much common sense, and the following lines are typical of his own attitude towards this problem. "For some years I shared a sleeping chalet with a friend who was suffering from somewhat advanced consumption. The chalet, open on three sides, was placed in the garden; our beds were about a yard apart. My day was spent for the most part in the open air, and my life generally was a healthy one. I never felt the least fear of becoming infected under these conditions of close contact. At the same time I should have absolutely declined to work day by day at the same desk with this patient in a stuffy city office."

EARLY ENGLISH MAGIC AND MEDICINE.

A Paper read before the British Academy, Jan. 28th, 1920. By Dr. CHARLES SINGER. London: Humphrey Milford. 1920. Pp. 34. 4*s*.

ALL researches into early medicine are interesting as showing the foundations of our present knowledge, and the medicine of our British and Anglo-Saxon forefathers should be of especial interest to us. Dr. Singer has collected a wonderful amount of information upon the subject, although, as it happens, a good deal of the ground had already been covered by Dr. J. F. Payne in his first series of FitzPatrick lectures. Dr. Singer distinguishes eight elements which go to make up the medicine of our early forefathers—namely, Greek medicine filtered through Latin; ecclesiastical elements; Salernitan texts; native Teutonic magic and herb lore; Celtic magic; herb lore from Southern Italy; Byzantine magic; Pagan Roman spells. Dr. Singer possesses a wonderful fund of by-ways of knowledge—e.g., he notes in commenting upon Byrhtferd of Ramsey's diagram of the relations of macrocosm to microcosm that the initials of the four cardinal points which are given in Greek, Arcton, Dysis, Anatole, Mesembrios, make the word Adam, and that Adam is called *protoplastos*. This word, says Dr. Singer, is liturgical, and is found in the Mozarabic liturgy but not in liturgies of later Roman origin. The term *protoplasti*, we may add, is applied to the first men by Tertullian, an African father, and the word may have got into the liturgy through the Moors. Altogether, the paper is well worth reading.

RECENT AMERICAN WORKS ON FOOD AND DIETETICS.

Diet in Health and Disease. By JULIUS FRIEDENWALD, M.D., and JOHN RUHRAH, M.D. Fifth edition, reset. London and Philadelphia: W. B. Saunders Company. 1919. Pp. 919. 25*s*.—The outstanding feature of this volume is the attention that has been given to the important question of diet in disease, this section occupying rather more than half of the contents. It is preceded by general considerations in regard to the chemistry and physiology of digestion, the various classes of foods, and the factors concerned in the diet of individual cases. The composition of foods is discussed with some detail, and the now familiar unit, the calorie, and the value of foods based on calorific estimates claim full consideration. The accessory food factors come in for attention, whereas in previous editions their importance was not so much in evidence. As we have implied, however, the value of the work rests largely on the adaptation of a dietary to a patient's needs and comfort as set out in a well-written series of chapters on diet in disease. These will form a useful source of reference to the general practitioner.

Bacteriology and Mycology of Foods. By FRED. WILBUR TANNER, M.S., Ph.D. New York: John Wiley and Sons, Inc.; London: Chapman and Hall, Ltd. 1919. Pp. 591. 28*s*.—The subject of foods is not directly reached in this volume until the reader comes to Chapter VI., when the proteins, carbohydrates, and fats are considered. The previous chapters are devoted chiefly to bacteriological technique, including one (Chapter V.) with quite extensive sections on sterilisation and disinfection, and a somewhat elaborate reference to the standardisation of tar acid disinfectants based on what is called the "Hygienic Laboratory phenol coefficient," deduced from a modification of the method established by the researches of THE LANCET Commission on the subject in 1909. "THE LANCET Method" is described as an introduction to the modified method of the Hygienic Laboratory (United States Public Health Service). These chapters are succeeded by sections, amongst others, on water hygiene, milk and milk products, the bacteriology and composition of eggs, meat and meat products, food preservation, and, lastly, epidemiology. The section on eggs is one of the most interesting in the book and bears largely on the question of the diagnosis of the age of the egg and the characteristics shown by the stored egg, pickled egg, and so forth, as manifested by transparency to "candling." The coloured illustrations here are a remarkable feature of the book, in giving a faithful portrayal of the fresh and stale article. We agree with the author that the field of food microbiology is a broad one, but he seems to have encountered some difficulty in keeping up a smooth sequence of events within the limits of this publication.

Milk. By PAUL G. HEINEMAN, Ph.D. W. B. Saunders Company. 1919. Illustrated. Pp. 684. 25*s*.—Milk would be a difficult subject to exhaust, but the work in front of us is remarkable in its extensive and intensive treatment of all questions connected with the hygienic aspect of milk-supplies. Laboratory work is outlined describing the important methods for carrying out sanitary milk examinations, and the bulk of the subject-matter is based on a series of lectures delivered in the Department of Hygiene and Bacteriology of the University of Chicago. This course deals with the physical and chemical properties of milk, the biology of milk, including bacteriology, and methods of producing, handling, and distributing milk. Whilst an admirable example of compilation, many of the numerous chapters give direct evidence of original work. The references to enzymes, vitamines, and sterilisation show the author's acquaintance with modern work done upon

these subjects by British authors, as, for example, that of Lane-Claypon, Starling, Halliburton, Harden, Hewlett, Woodhead, and others. Communications which have appeared in THE LANCET are cited in the copious bibliography at the end of each section, and reference to these will show how high British research stands, where the composition and qualities of milk are in question, making our practical treatment of distribution a scandalous discrepancy with our science. The concluding chapters relate to milk products, including condensed and desiccated milks. The author points out the advantages of dried milk, but appears to have overlooked, when he refers to the shipping of milk powder from one country to another, the troublesome property of the fat in full-cream powders sooner or later becoming rancid. This publication will advance its readers in all modern knowledge concerning milk.

Food: its Composition and Preparation. By MARY T. DOWD and JEAN D. JAMESON. New York: John Wiley and Sons, Inc.; London: Chapman and Hall, Ltd. Pp. 173. 6*s*.—The authors of this book are teachers of household science at the Washington Irving High School, New York, and they deal admirably with a subject of capital importance. The physiology and chemistry of foods are described in clear and simple terms, and the chapters on practical matters, the preparation, selection, and cooking of food, should be most serviceable. Science and practice are here well partnered, and there is set out an excellent course of training in regard to the things that nourish us and how to present them attractively, as well as scientifically, for consumption.

Diet Lists of the Presbyterian Hospital, New York. Compiled with notes by HERBERT S. CARTER, A.M., M.D. Second edition. W. B. Saunders Company. 1919. Pp. 165. 6*s*.—This book affords a useful synopsis of approved diets in pathological conditions. After a consideration of the suitable diets for convalescents, the following series are dealt with: typhoid diets, pneumonia diet, nephritic diet, diet in arterio-sclerosis, gastric diets (including gastric tests), diets for intestinal conditions, diabetic diets, purin-free diets, obesity diets, low calcium diets, convalescent children's diets, followed by a number of miscellaneous recipes in the concluding chapters. Since the compilation is based on the latest studies in all countries of the various subjects entailed, and on the inferences derived therefrom in practice, the book offers a useful source of reference to consultants and practitioners alike.

The Nation's Food. By RAYMOND PEARL, Ph.D., Sc.D., LL.D. W. B. Saunders Company. 1920. Pp. 274. 16*s*.—The chief interest of this work lies in food statistics, but the copious returns given refer mainly to the position of the United States in regard to these matters. The question of the relation of food imports to food exports, as outlined in Chapters VI., VII., and VIII., invites attention, however, on this side, as well as also Chapter V. on "Total Human Food Production." The book brings out clearly the interdependence of nations on food-supplies, as is instanced in the opening section on "The Food Problem." We find here a food map of Europe showing in diagrammatic form where the shortage of production is. The map is marked in four sections as follows: (1) famine conditions, (2) food shortage approaching famine point, (3) serious food shortage, and (4) sufficient present supply, but future serious. It is interesting to note that England, France, Scandinavia, and Spain are placed in the last category, while Russia, Poland, Serbia, and Armenia come under the first section. The book focuses attention upon very important social and economic food problems affecting the health and well-being of the nations at large, and this collection of statistics will be valued coming from an authority who during the war was chief of the Statistical Division of the United States Food Administration under the control of Mr. H. C. Hoover.

Text-book of Meat Hygiene. By RICHARD EDELMANN, Ph.D. Fourth revised edition by JOHN R. MOHLER, A.M., V.M.D., and ADOLPH EICHHORN, D.V.S. New York and Philadelphia: Lea and Febiger; London: J. and A. Churchill. 1919. With 161 illustrations and 5 coloured plates. Pp. 472. 24*s*.—Our impression of the value of this volume to those engaged on meat inspection, expressed in a review of the previous edition, which appeared in THE LANCET of March 29th, 1913, receives answer in the fact of a fourth revised edition being issued. The rules and regulations governing meat inspection of the Bureau of Animal Industry of the United States form largely the text of the chapters, and these rules are a model for other nations. Laboratory methods are clearly described, and, generally speaking, this revision may claim to present the latest knowledge on modern developments of meat hygiene. There is no subject of greater importance to the community than the advanced study of meat hygiene with the view of letting free to that community only sound and wholesome animal food. This book fulfils a well-defined purpose.

JOURNALS.

Tubercle. A Monthly Journal Devoted to all Aspects of Tuberculosis. Vol. I., No. 9. June, 1920.—The Rôle of Heliotherapy in Surgical Tuberculosis is the title of a lecture by Sir Henry Gauvain, which was delivered at Alton to post-graduates, and gives a general survey of the use of sunlight with a well-balanced estimate of its value. In contradiction of Rollier and others, the author assigns the first place to general and local conservative methods and puts insolation among adjuvant means with X rays and vaccines. The psychological value of sunlight is known to all, though some persons are much more affected than others, and this value is no doubt increased when the solar radiation is intentionally directed to therapeutic ends. The local or direct action of sunlight appears to be due to short-waved rays of low penetrative power and is thus limited to the superficial structures; it is potent as a bactericide chiefly in lupus and similar conditions. This direct effect is obtainable in any patient. Not so is the remote or indirect effect which depends not only on the qualities of the radiation, but on the physiological responses of the tissues, the most obvious of which is pigmentation. This factor is regarded as enormously important, for in some unexplained way pigmentation is so closely associated with recovery that it becomes a measure of resisting power and a sign of great prognostic significance. Heliotherapy is also the subject of a series of abstracts in this number. Dr. Holmboe, of Mesnalien, Norway, has combined the method with sanatorium treatment of pulmonary tuberculosis without interfering with the ordinary routine, and is satisfied that under careful dosage the patients benefited. No case suffered any harm, and high fever is almost the only contra-indication. The writer aims at pigment formation, following Rollier, who believes that pigment acts as a transformer of ultra-violet rays into others of greater penetrating power. Reyn, on the contrary, avoids pigmentation as far as possible, because he regards pigment as a barrier converting the beneficial long waves into the short-waved ultra-violet rays, but it is difficult to believe the result of a normal physiological process can be other than useful to the organism.

In a review of the annual report of the Canadian Association for the Prevention of Tuberculosis, attention is drawn to Dr. Dobbie's views on the vitally important question of prevention. It is easy enough to say that the surest way of suppressing tubercle would be to segregate all infectious cases, but we are dealing with human beings, not animals. Dr. Dobbie has a more excellent way. He approaches the matter from the standpoint of the susceptible subjects, dividing them into three groups in order of susceptibility: (1) infants under 3; (2) children over 3; and (3) adults. Infants should be totally isolated from any infective source, be this mother, father, or any other. Surely this course of procedure should not meet irreconcilable opposition. In the case of children over 3 Dr. Dobbie thinks isolation neither necessary nor desirable, since infection must occur sooner or later, and the main thing is to avoid massive infection while immunity is being developed. Lastly, the case of adults needs but little care, the great majority being already infected, but when advanced cases are a danger to others they should be compulsorily detained. There is much to be commended in this scheme.

Dr. Esther Carling contributes a report on cases of Pulmonary Tubercle treated by Artificial Pneumothorax, and this procedure is the subject of a long series of abstracts. The work of the Community Health Station at Framingham, Mass., U.S.A., is the subject of two articles. This great experiment in public health has now been carried on for more than three years and its results will be watched with increasing interest.

Four Authorities:

1. "I have very clear evidence of the fact that those who develop such diseases as are mentioned in the following list have suffered for some time from chronic intestinal stasis: non-specific arteritis obliterans, angina pectoris, rheumatoid arthritis, Still's disease, tubercle, exophthalmic goitre, adenoma of the thyroid, Addison's disease, Raynaud's disease, diabetes, ulcerative colitis, microbic cyanosis, dementia praecox, pernicious anaemia, disseminated sclerosis, paralysis agitans, infective endocarditis, and in many instances alcoholism and the drug habit, and numerous forms of skin disease."

Sir ——

"The Lancet"

December 20th 1919. pp 1123.

2. "Liquid Paraffin, or Russian Mineral Oil, is the agent which, by common consent, is pronounced the most satisfactory in the treatment of these cases." i.e. Intestinal stasis.

W—— S —— B——

A.M., Sc.D., M.D.

"Chronic Intestinal Stasis"

Womans Medical Journal

January 1914.

3. "In the New Utopia, where stasis will be regarded as a sin more sinister than sedition, and surfeit more unseemly than schism.....the function of the police will be the purveying of paraffin....."

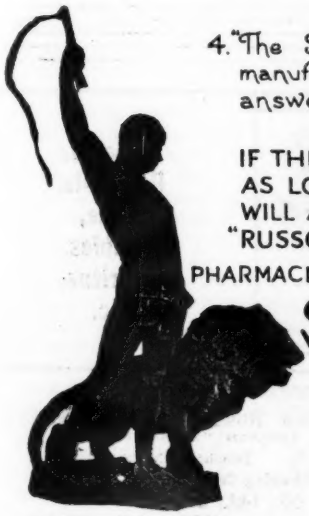
Dr ——

"The Operative Treatment of Chronic Intestinal Stasis" (1918)

p.p 263.

4. "The Silvertown Company, in particular, are manufacturing a fine standard product which answers all B.P. demands perfectly."

"The Lancet" 2nd October 1915.



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THE LANCET.

LONDON: SATURDAY, JULY 3, 1920.

The Annual Meeting of the British Medical Association.

THE Annual Meeting of the British Medical Association is proving a great success: it will have terminated before these words are read, but with its admirable setting at Cambridge, with a President so famous on the highest scientific planes that his official post confers dignity on the body over which he presides, and with a programme in which hard business, high thinking, and judicious levity are aptly combined, there can be no doubt that the meeting will end as it has begun, and form a memorable occasion.

We publish this week a summary of the proceedings at the four sessions of the Representative Body, which lasted four days. From these it will be seen how various were the professional subjects discussed, and how careful the Representatives were in their consideration of the mass of recommendations made by the Council, and of the riders and amendments arising thereout. This thoughtful attitude was well marked in the way in which the Representative Meeting dealt with the Interim Reports to the Ministry of Health from the Consultative Councils. The door was here open to all sorts of mistakes by way of too hasty criticism of avowedly interim documents. It is true that the meeting had before it a careful Report from the Ministry of Health Committee of the Association, but even with such guidance there were many opportunities for allotting general praise or general blame to prominent features of schemes which have been put forward as ideals for trial, and not as concrete proposals for imminent legislation. The opportunities were not taken, but a vote of real appreciation of the Consultative Councils' activities was recorded in terms that will afford Lord DAWSON, as the first chairman of the English Consultative Council, whose findings were under particular consideration, legitimate gratification, and, what is far more important, practical support for the future. The work of these Councils has yet to be done, and the demeanour of reserve was correct, but that it is not habitual with the Representative Body when expressing opinions is well shown by the resolutions passed where all the circumstances could be judged. The Representatives had no hesitation whatever in saying that, whether it were legally or officially inconvenient or no, the contents of remedies administered by the medical profession must be disclosed to the profession; while they turned down the idea of a whole-time State service of medicine uncompromisingly.

The scientific work of the Association was inaugurated nobly by the Presidential Address, appearing substantially at the front of our issue, wherein Sir CLIFFORD ALLBUTT discussed the part that should be played by the universities in the improvement of medical practice and the furtherance of medical research. He brought the history of the great seats of learning, the lessons of liberal education in the past and present, and his intimate knowledge of the medical profession as student, practitioner, psychologist, and professor, all to bear upon his theme; and by showing how directly the treatment of the sick is enlightened and fortified by, even if not based upon the ancillary sciences, he proved that no university can have a nobler faculty than that of medicine, and that no calling demands more universality in its education than the calling of the doctor.

The Teaching of Obstetrics.

AT the last meeting of the General Medical Council, a report on practical midwifery was presented by the Education Committee, and a general discussion took place upon this important subject. It is of course common knowledge that at many of the medical schools the regulations of the Council with regard to the proper teaching of this subject are not being carried out, and that by the major number of the examining bodies they are not insisted upon. At the present time we believe it is only the universities of Oxford and Cambridge which require that the student shall actually receive practical instruction in lying-in wards before presenting himself for his examination in midwifery. Other examining bodies only require attendance on a certain number of cases in the extern maternity department, where the teaching received by the student is often very imperfect, carried out as it is by junior residents or occasionally by a rather more senior registrar. If the teaching of practical midwifery is to be put upon a proper basis the examining bodies must be persuaded to alter their regulations and to require attendance and adequate instruction for every student in a properly equipped intern department; and in order that this change may be brought about it is imperative for the other members of the teaching staffs of the medical schools to recognise that the importance of practical midwifery for the average practitioner is just as great as that of practical medicine and surgery. At the present time the number of the beds, less than one-twentieth, allotted to lying-in cases in the principal London hospitals is absurdly small, and it is impossible in most cases for the obstetric physicians or surgeons, always in a numerical minority, to persuade their colleagues to hand over to their charge the beds necessary for the proper teaching of their subject. The right balance will hardly be struck until all the examining bodies make the bedside teaching of midwifery compulsory.

It is, we fear, little use for the General Medical Council to make recommendations which the examining bodies ignore, and which, therefore, the medical schools do not carry out. The teaching of practical midwifery to medical students in London at the present time is extremely inadequate, as the report from the Obstetrics Section of the Royal Society of Medicine on the teaching of obstetrics and gynæcology to medical students clearly shows. This report has been circulated, we believe, to all the medical schools, but, so far as we are aware, no action has been taken. It is hardly reasonable to hope that physicians or surgeons will give up beds until they are required to do so by the regulations of the examining bodies, while in the present state of

hospital finances the managing committees cannot be expected to enlarge their institutions for this purpose. Still, it is impossible to reiterate too strongly that the teaching of midwifery will never be on a satisfactory basis until all the examining bodies insist upon proper practical instruction being given, and until every medical school has attached to it a complete obstetric department, officered by men adequately trained for teaching and supplied with the necessary number of beds and the requisite laboratories and other requirements not only for teaching but also for research. At the moment infant welfare is in the ascendant, but given a certain limited supply of money and effort it might be better to spend these upon the mothers rather than upon attempting to keep alive unhealthy and delicate children whose ill-health and delicacy are in many cases due to the lack of proper care of the mother before and at the time of her confinement. Of course, any properly equipped obstetric department will have associated with it an infant-welfare centre, and until such departments are instituted in the metropolis the teaching of obstetric medicine, including antenatal care, will remain unsatisfactory.

Consultant Medical Service on a Graduated Income Basis.

DETAILS have recently been made public of an important experiment in providing a complete medical service for the staff and workpeople of a London business house. The experiment was inaugurated on a small scale some time ago by Messrs. THOMAS DE LA RUE AND CO., Ltd., and has met with such success at their hands that the Company is now commending it to other employers. The kernel of the matter is that a number of consulting physicians and surgeons have agreed to treat privately at reduced fees patients sent to them by the Company, the fees to be based upon what is described as "adjusted income." This includes private means as well as salary, one-fifth of the total being deducted on account of a wife and a further one-tenth on account of each child or other dependant member of the household. The fees payable vary from 10 to 60 per cent. of the norm for operations and from 25 to 100 per cent. in the case of consultations and medical treatment, a minimum of a guinea for a single visit being payable in all cases. In order to ensure that cases are not sent to the consultant staff without due cause, a certificate is required in each case from the Company's medical adviser, the patient then going on to the consultant with a voucher stating the proportion of the normal medical fee payable by him. The Company thus constitutes itself as almoner to private practice, relieving the consultant of the onus of making tiresome inquiries. A further proposal is now made with a view to the provision of a great central nursing home for the reception of employees from a number of business houses at reduced fees, it being suggested that a private institution of this kind with a large number of beds could be run at considerably less expense than at present prevails in the smaller nursing homes now available. Mr. STUART DE LA RUE, who holds an official position on the King's Fund and on the Hospital Sunday Fund, states that his scheme has so far received the whole-hearted support of the medical profession.

The Promise of Peat Potentials.

THE scarcity of fuel concerns us all, and, should it get acute, may well give rise to ill-health. This consideration adds a medical interest to a lecture delivered by Professor PIERCE F. PURCELL on the Peat Resources of Ireland before the Royal Dublin Society, and now published by the Fuel Research Board (Department of Scientific and Industrial Research). The story is mainly technical, but conveys clear and simple lessons to the intelligent reader. In a prefatory note the Director of Fuel Research, Sir GEORGE BEILBY, points to the revival of interest in the question of peat now that there is an admitted scarcity of other kinds of fuel. The peat industry requires wide knowledge, perseverance, and a strong financial backing, for its development is capricious, and fortunes have been lost in it. Professor PURCELL points out that though 98 per cent. of the coal used was imported into Ireland in pre-war times, the supply was ample and the price relatively low, but these happy conditions will return no more. The supply is now reduced, while the price is beyond the means of most, and this reduction of fuel and shortage of food helped to increase the severity of the epidemics of influenza which prevailed in the coast towns of Ireland two years ago. It has been claimed that there is less illness in those houses where peat is employed as a fuel. There is certainly less smoke and dirt produced by the combustion of peat, while bread baked by such fuel holds among the peasantry the highest reputation.

The physical properties of peat are remarkable. The material may contain anything up to 95 per cent. of water and still remain a solid. It is interesting to contrast this with milk containing 12·5 per cent. of solids and 87·5 per cent. of water, in spite of which it is a mobile fluid. Most meats contain 70 per cent. of water, but in such cases the water must clearly be in a kind of combination with tissue or substance, although easily liberated from it by heating or cooking. Evidently the rôle and exact location of water in animal and vegetable tissues calls for investigation. Water is the main trouble in peat. In order to produce one ton of air-dried peat it would be necessary to handle 15 tons of raw peat containing 95 per cent. of water. The net calorific value of dried peat, according to Professor PURCELL, would be 6000 to 7000 B.T.U., and reckoning the average heating value of coal at from 12,000 to 14,000 B.T.U. this means that two tons of dried peat are the equivalent of one ton of coal. It should be noted, however, that the mineral matter in peat averages only 4 per cent., while coal may contain anything up to 20 per cent.

The real problem about peat is the economic elimination of its obstinate water contents. Professor PURCELL'S interesting lecture discloses the possibilities of utilising important national reserves to supply our fuel needs, and raises questions of the greatest importance when we consider the vast peat areas in the country hitherto practically untouched. The peat deposits in Ireland, or bogs, as they are commonly termed, cover no less than one-seventh of the area of the country, and already form the entire fuel supply of 62 per cent. of the farming industry. It is to be hoped that this illuminating lecture will so stimulate the coöperation of science and industry as to bring a fund of fuel to the prompt disposal of a necessitous community.

Annotations.

"Ne quid nimis."

THE "TOMES" COLLECTION.

THE Museum of the Royal College of Surgeons of England has received from Sir Charles Tomes, F.R.S., a gift of great scientific value—namely, the microscopic preparations of teeth made by the donor and by the donor's father, the late Sir John Tomes, F.R.S. The collection thus presented consists of more than 1300 specimens of ground or otherwise prepared sections of the teeth of vertebrate animals. The dental anatomy of all forms of mammalian teeth is depicted more fully than in any other collection. The "Tomes" collection, which thus becomes accessible at the Royal College of Surgeons to all students of dental anatomy, will prove of the utmost use to those who are investigating problems in dental structure. Many of the specimens used by Sir Richard Owen in the preparation of his "Odontography" are also preserved in the Museum of the College. The oldest microscopic preparations in the College collection are those made by Hewson in the later part of the eighteenth century.

INDIVIDUAL COUNTY SCHEMES OF MEDICAL SERVICE.

A SIGN of the increasing interest in a better organisation of medical service throughout the country is the effort being made by various counties to formulate medical schemes for local use. Among the most progressive counties in this respect is Gloucestershire, whose County Council reviewed the situation early in 1918 and outlined a scheme, modified in 1919, which has now received the approval of the Ministry of Health. Some 50 "out-stations" will be provided, each to cover a radius of about three miles. The out-stations will be provided and equipped by the County Council primarily for examination and treatment in connexion with venereal disease, tuberculosis, ex-Service cases, school, maternity, child-welfare, and other clinics, for which provision has been made, or may in the future be made, at the public expense. They may also be used by the medical officers for other patients by arrangement with the County Council. Besides the regular staff, consisting of local practitioners, there will be consultants—the visiting staff of the general hospital, and the tuberculosis and venereal disease officer of the County Council—a district nurse, a masseur, and a V.D. orderly and nurse. The out-stations will be opened weekly for attendance by the medical officer, periodically for attendance by consultants, as often as may be necessary for intermediate treatment by the nursing staff, and at such other times as are convenient to the medical officer for seeing his own patients and hospital cases. An ambulance service is also proposed. The expenses will be paid partly by the County Council direct, and partly by the hospital out of sums provided by the County Council. After the first year the advisability of rearranging the scale of payments on a case or attendance basis will be considered in the light of the experience gained. It will be seen that the proposals of the Gloucestershire County Council coincide in important respects with those formulated by the Consultative Council on Medical and Allied Services, which quotes the scheme in its interim report, and the results of their practical application will be watched with the keenest interest by the whole country. The county of Cheshire appears specially alive to the need for a more efficient supply of the ancillary services, and has just issued a statement, prepared by the Local Medical and Panel Committee, of the provision made for diphtheria antitoxin, vaccines, diagnostic and other clinical facilities for the use of the general practitioner. The facilities for pathological diagnosis of venereal diseases, tuberculosis, diphtheria, typhoid fever, *B. coli* infections, dysentery, C.S.F., and malaria available for each rural or urban district are detailed in tabular form. The nearest places where treatment in the form of arsenic injections, antitoxin, vaccines, serums, and oxygen can be obtained are indicated, as are also the districts in which nursing for ophthalmia neonatorum, influenza, pneumonia, and measles is at present available. Of the home counties, one or two are making special efforts to enhance their already established reputations for infant welfare work. Sussex has recently shown its approval of the sanatorium treatment of tuberculosis by sanctioning the purchase and conversion of two large private estates for this purpose at a cost of some £70,000. The London County Council has established a network of clinics for venereal disease, while the Portsmouth district is making a special effort to cope with this problem on even more vigorous lines. Concentration on one special problem by a local authority, pending the entire reorganisation of the medical services of the country, is hardly less desirable than a trial on a small scale of more general changes; both experiments should be productive of useful results. The value of sanatorium treatment, the effect of the establishment of lying-in hospitals on maternal and infant welfare, the best line of attack against venereal disease—all these are problems the solution of which might be worked out regionally by observation and experiment before huge sums of money are spent simultaneously throughout the kingdom. At the same time, there must be no delay in providing all strata of the community with those medical services hitherto enjoyed only by the rich and, in urban districts, the poor.

HIPPOCRATIC FINGERS.

IN a communication made to the Society of Medical Science at Milan,[1] Dr. Vittorio Ronchetti described the case of a girl, 11 years of age, who died in the Ospedale Maggiore from extensive amyloid degeneration of the liver and ascites following a tuberculous spondylitis, and who showed to a marked degree the so-called Hippocratic or drumstick fingers. At the autopsy, besides the amyloid infiltration of the liver and spleen there were a few scattered sclerosing foci of tubercle at the apices of the lungs, the largest being the size of a pea, some fibrocaseous nodules in the glands at the hilus, and dorsal kyphosis from old Pott's disease. There was neither pulmonary cavitation nor bronchiectasis, nor any miliary tubercle. Dr. Ronchetti draws attention to an interesting fact in this case, not easy of explanation—namely, the coincidence of extensive visceral amyloid disease (the liver weighing 2500 g. and the spleen 150 g.) in comparison with the scantiness of tuberculous lesions; that the few bacilli present immobilised in cicatricial tissue or circumscribed in fibrocaseous foci, encapsuled and semi-calcified and incapable of becoming sufficiently active to produce any miliary diffusion, should have acted as possible causative agents of such intense amyloid degeneration. He expresses his inability to give any adequate solution, but pertinently asks whether amyloid degeneration once started may not be able to persist and progress even though the primary disease which determined its origin becomes extinct or reduced to an infinitesimal degree. The condition of the fingers, which must be distinguished from the hypertrophic pulmonic osteoarthropathy of Marie, is also little capable of definite explanation. Its pulmonic origin can no longer be accepted, at least not univocally, and, moreover, neither the existence of broncho-pulmonary or pleuritic disease, nor the production of putrid substances in the organism can represent the only and exclusive cause, since there are many cases of empyema, bronchiectasis, and tuberculous cavitation in which it is entirely absent, and it is not easy to understand why it is frequent in bronchiectasis and rare in tuberculous vomicæ, nor why it should be very common in congenital heart disease and absent in acquired morbus cordis, even after long periods of failing compensation. Dr. Ronchetti states that this is the first time he has met with this condition in amyloid disease of the liver,

[1] Atti della Società Lombarda di Scienze Mediche e Biologiche, vol. viii., Fasc. 3-4, June 27th, 1919.

and for an explanation falls back on the theory of Ferrio, who attributes it to reflex vaso-motor action causing disturbance of circulation and chronic stasis. A curious fact noted by him is that he has seen it disappear in a case of empyema with thoracectomy and the formation of a pleuro-pulmonary fistula after the patient got well. It is many centuries since the Father of Medicine described *οἱ δυυχες περιτεταμένοι* as diagnostic of empyema, but we have yet much to learn about them.

SURGERY ON THE MOVIES.

RECENT improvement in the reproduction on the film of surgical procedures has been rapid. By means of powerful arc lamps it is now practicable to produce films showing all the details of an intricate operation. At the recent demonstration held under the auspices of the Fellowship of Medicine at the House of the Royal Society of Medicine films were exhibited showing the application of the kinema to the various branches of medicine, surgery, and odontology. The value of such films for teaching and demonstration purposes, especially for post-graduate work, was apparent to all. From a description in print it is not easy to follow all the intricacies of such an operation as an inlay bone-graft, but on the kinema every detail is seen as clearly by the spectators as by the surgeon and his assistants at the actual operation. Particulars of a further series of short film demonstrations, to be given on Monday and Friday afternoons at 5.30 P.M., will be found in our Medical Diary. We warmly commend these demonstrations to all who wish to keep in touch with present-day technique.

HÆMOPHILIA IN WOMEN.

A NEW interest has been aroused in the subject of hæmophilia by the work of H. W. C. Vines, who has shown[1] that the condition can be temporarily alleviated by the production of a slight anaphylactic shock in the patient. Although this cannot be used as an emergency procedure, an extended use of blood transfusion has placed in our hands the means of at once arresting hæmorrhage and of replacing the lost blood. The anaphylactic shock method of treatment has now made it possible to perform upon a hæmophiliac, during the period of remission of the disease, any surgical operation that may be necessary without fear of hæmorrhage. The pathology of hæmophilia remains obscure, and all that it is possible to say is that the coagulation time of the blood is so much lengthened that no clot will form upon a wounded surface; which constituent of the blood is deficient remains a matter for speculation. It was not until the beginning of the nineteenth century that hæmophilia was described as a clinical entity, but already by 1820 enough evidence had accumulated for Nasse, professor of medicine at Bonn, to state that males alone were affected and that the disease was transmitted through apparently normal females mated with normal males. This view of the sex-limited character of the disease has been generally accepted since that time, but the rule has, nevertheless, frequently been challenged. The best general account of hæmophilia in English, with special reference to its manner of inheritance, was published by Bulloch and Fildes in Parts V. and VI. of the "Treasury of Human Inheritance," a very valuable collection of monographs issued by the Galton Eugenics Laboratory in 1911. These authors came to the conclusion that none of the recorded cases of hæmophilia in women would bear analysis, since the statements were unsupported by adequate evidence. The whole literature of the subject, numbering 911 references, was collected by them, and it might have been thought that the question was closed. Since then, however, cases of supposed hæmophilia in women have been reported and this has led to a further interesting contribution to the literature by Dr. Constantine Bucura, of Vienna, in his "Hämophilie beim Weibe."[2] Dr. Bucura has collected 202 alleged cases and has subjected them to a critical examination. He finds that almost every known condition in which bleeding, in one form or another, is a feature, has been confused with hæmophilia. The majority of the cases have presented some abnormal hæmorrhage of gynæcological origin and this has been accepted as a manifestation of true hæmophilia, though presenting none of the features which distinguish the disease in the male. Bleedings from the female genital organs are, as Dr. Bucura points out, often difficult to explain. Menstrual blood is deficient in some of the constituents of normal blood, so that normal menstruation amounts to a local hæmophilia of the parts; the balance of the processes involved is easily upset and abnormal hæmorrhage may result, but this does not justify the inclusion of such cases among true hæmophiliacs. There is only one final pathological test for true hæmophilia and that is the measurement of the coagulation time of the blood in the general circulation during a period of hæmorrhage. In true hæmophilia this is increased six or seven times, a degree incomparably greater than is found in any other hæmorrhagic disease. Dr. Bucura finds that no authentic case of hæmophilia in a female has yet been recorded. His conclusions, though negative, are none the less valuable and constitute an authoritative confirmation of the views expressed by Bulloch and Fildes nine years ago.

[1] Quart. Jour. Med., April, 1920.

[2] Hämophilie beim Weibe. Kritische Studie nebst Erörterung der gynäkologischen Blutungen. Von Prof. Dr. C. Bucura. Wien und Leipzig: Alfred Hölder. 1920. Pp. 92. M. 11.20.

TYPHUS IN POLAND.

THE serious increase of typhus in Eastern Europe has given rise to an appeal for funds to send a completely equipped unit to cope with the 250,000 cases of typhus at present known to be actually occurring in Poland alone. The signatories include the Bishop of London, Cardinal Bourne, the Chief Rabbi, Lord Treowen, Lord Stuart of Wortley, Sir Arthur Stanley, Mr. T. P. O'Connor, and, among medical men, Sir Humphry Rolleston, Sir James Cantlie, Dr. William Hunter, and Dr. J. C. McClure. We have already pointed out[1] that the westward spread of typhus epidemics is a matter of grave concern to the rest of Europe and can only be prevented by energetic action. The endemic prevalence of typhus in Poland, the nature of the conditions likely to cause its spread, and the proposed measures for its eradication were considered in the Report of the Inter-Allied Medical Commission to Poland, presented to the League of Red Cross Societies in October, 1919. The excellent proposals of the newly established Ministry of Public Health in Poland were also recorded in the report, and suggestions were made for the development of the Polish Red Cross Society, under whose auspices the present appeal is issued. Donations should be sent to the Princess Sapieha, 45, Grosvenor-square, London, W. 1.

THE SYNDROME OF THE GENICULATE GANGLION.

AT a meeting of the Société Médical des Hôpitaux of Paris, M. A. Souques reported a case of a rare and little-known syndrome, characterised by zona of the external ear, facial paralysis, and auditory troubles on the same side, which he termed "the syndrome of the geniculate ganglion." On Jan. 15th a woman felt severe shooting pains in the right external ear and retro-auricular region. She had at the same time headache and malaise. On the 19th she found that the right side of her face was paralysed and that the ear was red and swollen and showed some "little buttons." Almost at the same time as the pains began, three or four vesicles appeared on the upper surface of the anterior half of the tongue. On examination on Jan. 30th there was complete paralysis of the facial nerve, which gave no reaction to the faradic or galvanic current. There were three groups of fading herpetic vesicles—in the antihelix, concha, and fossa of the antihelix. On the tongue were vestiges of vesicles. The pains which had preceded and accompanied the eruption had disappeared and there was no anæsthesia, but pain was provoked on pressure on the right half of the face. Taste for salt and sugar was diminished

[1] THE LANCET, 1919, ii., 741.

on the right side of the anterior half of the tongue. The patient had not noticed any auditory symptoms, but marked loss of hearing was found on the right side. All these symptoms can be explained by inflammation of the geniculate ganglion. It is now recognised that, like the spinal nerves, the facial is a mixed nerve, and that this ganglion corresponds to the ganglia on the posterior roots of the spinal nerves. The sensory root of the facial is the intermediary nerve of Wrisberg, and the sensory branches are the great and little superficial petrosal nerves and the chorda tympani, which is the nerve of taste in the anterior portion of the tongue. An American neurologist, Dr. J. Ramsay Hunt, has exhaustively described the various forms of herpes zoster due to inflammation of the ganglia of the cranial nerves. He has thus mapped out the cutaneous distribution of the facial nerve in cases of inflammation of the geniculate ganglion: the concha, part of the antihelix, the fossa of the antihelix, and the summit of the antitragus. The connexion of the ganglion with the facial nerve explains the propagation of inflammation from the one to the other and the facial paralysis. Similarly, the proximity of the auditory nerve explains the auditory symptoms. However, direct affection of the peripheral ganglia of the auditory nerve (the ganglia of Scarpa and Corti) cannot be excluded. It is well known that the virus of zoster often attacks several ganglia. There may also be zona of the second and third cervical nerves, as there was in a case shown by M. Souques at the Société de Neurologie. The hyperæsthesia of the face and the pain behind the ear, in the case related above, suggest that either the sensory distribution of the facial is more extensive than has been stated, or that other ganglia were affected. A knowledge of the syndrome of the geniculate ganglion, complete or incomplete (zona of the ear alone or with facial paralysis), is of great practical importance. It may explain certain cases of facial paralysis the cause of which has escaped detection. The presence of pain in a case of facial paralysis would suggest this origin. M. Souques is disposed to think that the prognosis of this form of facial paralysis is better than that of other forms, but admits that his experience of it is very limited.

THE CONTRIBUTION OF VULPIUS TO ORTHOPÆDICS.

Professor Vulpius, of Heidelberg, has a more than European reputation as an orthopædic surgeon, which has been earned by good work done in the specialty. Probably he is best known by his publications on tendon-transference and cognate procedures. Although Nicoladoni first introduced the treatment of the deformities resulting from anterior poliomyelitis by transferring the insertion of an over-acting tendon to that of one which is hopelessly paralysed, he did not live to pursue the subject far. To Vulpius belongs the credit of being a leader in the investigation and proof of the applicability of the method, and if at one time it may have seemed that his enthusiasm outran his judgment, yet a good deal was learnt from the wide scope of his labours in tenoplasty. He has now published in a pamphlet of 80 pages[1] the conclusions which are the outcome of his 25 years' practice as an orthopædic surgeon, together with a review of the history, development, and scope of the specialty and the means best suited to carry out its aims. In a series of short essays he defines the lines upon which the treatment of the most important deformities and joint and bone diseases should be conducted. All these chapters are worthy the perusal of everyone who has to deal with orthopædic problems. Orthopædic surgery, which at first was limited to the instrumental treatment of deformities, took on fresh growth when subcutaneous tenotomy was introduced, seemed likely to be swallowed up by general surgery when Lister widened the field of treatment by operative means, but had been mostly reconquered by specialism ere the beginning of the war. The experiences of the war led to a surprising extension of the application of orthopædic methods and induced many of our younger surgeons to study and practise them. Some years ago a great step in advance was taken in Germany when a census of cripples was made and the profession and public were startled to find how much cripple treatment had been overlooked and what a great expansion of means of cure was necessary to cope with the problem. There is crying want of such a census in the United Kingdom, and it is to be hoped that the Ministry of Health will undertake the task as an essential to the organisation of preventive and curative measures. The treatment of cripples of all sorts—tuberculous, paralytic, congenital, rachitic, and others—needs special institutions, specially trained surgeons, special apparatus, and much time. The problems of the pre-war period are still waiting to be solved, and to them has been added the burden of war cripples, including amputees. The need of improvement in artificial limbs calls for the collaboration of the orthopædic surgeon, the engineer, and the limb-maker. It can easily be demonstrated that the early and thorough treatment of the nation's cripples will pay for itself in the resulting improved earning capacity of the patients. There is need of many properly equipped orthopædic hospitals, preferably in the country, where all the most recent methods of diagnosis and treatment would be available. Not only for the pauper are such institutions wanted, but also for those of moderate means, since the greatly increased cost of up-to-date treatment bids fair to put it beyond the reach of all but the very poor or the very rich.

[1] Aus 25 Jahren Orthopädischer Arbeit. Eine therapeutische Orientierung für den praktischen Arzt. Von Prof. Dr. Oscar Vulpius, Heidelberg. Verlag von Urban und Schwarzenberg, Berlin und Wien. Pp. 80. Price M.12.

CARE AND AFTER-CARE IN TUBERCULOSIS.

IN a leading article on Tuberculosis and Residence, which appeared in our issue of Feb. 21st, we discussed some of the economic difficulties in the efficient treatment of a disease so ubiquitous as tuberculosis. The paper under the title of this annotation read by Dr. Stanley Tinker to the Tuberculosis Congress at Leeds was a further practical contribution to the problem of how to make sanatorium treatment more permanently beneficial.[1] Sanatorium treatment fails for two reasons: bad selection of cases and failure to maintain the improved health obtained during absence from home. The former is simply a matter of wise and unbiassed administration. The latter is a huge, and so far unsolved, problem for which after-care committees have been formed and immense and costly settlements are proposed. Care committees are undoubtedly doing good work, but their outlook is, for the most part, too limited, and they are hampered by lack of funds. The proposal to send consumptives to labour colonies to be established for them in healthy country districts, where all the conditions would be conducive to the continued amelioration begun at the sanatorium, would be, as Dr. Tinker says, ideal if it were practical. The Government has promised to create ten such settlements for 200 to 250 men at a cost of £1,000,000. But to provide for the tuberculous sailors and soldiers alone in this way would cost 200 millions, and estimating the civilian tuberculous as low as 200,000, another 1000 million pounds would be required for a complete scheme. "To remove the cases as they occur and to transport them into ideal villages is but to play with the very fringe of the subject." There must, in the first place, be more thorough dealing with the sources of the disease by municipal authorities, and Dr. Tinker thinks that it should be a principal duty of care committees to stir up public opinion and press the borough councils (and the Government?) to do their duty. He rightly says that it is not necessary to wait till the housing problem is dealt with. It is not so much the houses themselves as the dirtiness, ignorance, alcoholism, and other remediable factors associated with industrial areas which are the cause of tuberculosis. Dr. Tinker's alternative to newly created tuberculosis industrial settlements is to leave the consumptives in their homes, but provide within easy reach special workshops where hours,

[1] Medical Officer, June 12th.

ventilation, meal-times, and other conditions are suited to the capacity of the persons employed.

A scheme on these lines is being inaugurated in Wimbledon for the employment of discharged tuberculous sailors and soldiers. The workshops will consist of two parts—one for training and one for permanent employment. It is expected that the men will be trained to be machinists rather than skilled mechanics. This will simplify training, and make the man more or less self-supporting at an early period. Trade-union rates of wages will be paid, and their pension will sufficiently supplement the wages of those unable to work full time. The workshops are to have ample air-space, but Dr. Tinker does not recommend open-sided sheds. On each site there will be a workshop for 30 to 50 men, with a recreation room, dining room, kitchen and managers' office, instructors', implement, and store rooms, lavatory and washing accommodation. It is expected that the output of work will pay the wages of the men, but of course the workshops will be run at a loss, estimated at 30*s.* a head, and the Government has been asked for a grant to cover this deficiency. We shall look forward with interest to see the Wimbledon scheme actually at work. It is certainly much more practicable than a new industrial settlement, which in any case cannot materialise for some years. If borough council and care committee coöperate on the lines of Dr. Tinker's paper we should expect very great results, and in any case the mere adjustment of the work done to the capacity of the consumptive which the scheme should primarily ensure will probably very greatly increase the men's prospect of maintaining the improvement commenced at the sanatorium.

ANTIMALARIAL MEASURES AT TARANTO.

TARANTO, in the hollow of the instep of the Italian boot, has a wonderful harbour; a large deep-water bay, entered by a canal; perfectly secure against submarines. It is also the nearest harbour attainable from England by land on the way to Salonika, Egypt, and the East. It was therefore established in 1917 as a great forwarding port with a large rest camp. The southern part of Italy is very malarious, and Taranto is no exception. Antimalarial measures were taken at once, but those taken proved insufficient, and Colonel J. C. Robertson, C.M.G., C.I.E., I.M.S., Sanitary Commissioner with the Government of India, was sent there to plan and carry out what further measures were needed. Of his campaign he gives account in the *Journal of the Royal Army Medical Corps* for May. He was fortunate enough to travel out with Sir Ronald Ross, and in December, 1917, they planned together the necessary works. Naturally the scheme devised by these experienced officers stood the test of practice. The camp was on a hill at the edge of the sea, with higher ground at the back of it and two marshes lying on its flanks. Colonel Robertson discusses antimalarial methods at considerable length and very helpfully, and his reports will well repay perusal. Here it must suffice to say that, commencing as he did in the winter, he first decided to destroy as many mosquitoes as he could at once while they were hibernating. They had to be searched for in houses, huts, and sheds, a toilsome procedure, which, however, gave a census of mosquitoes, and besides trained the staff to recognise and catch them. The mosquito breeding-grounds were next attacked, first those within the camp and then those in successive circles round it. In the camp area wells, tanks, and cisterns were sealed or drained, all hollows in tree trunks were plastered up, and no breeding-ground then remained within the camp. Next he attacked the inner circle zone around the camp. The wells here were sealed, and pumps installed in lieu, the trees were treated as within the camp, the surface drains were cleared and regraded, all springs were underdrained and their water carried to outfalls in which automatic oil drippers were placed. There remained the more extensive, more remote, outer circle zone. The marshes over a mile from the camp were treated similarly but less completely, the nearer marshes were treated as the inner circle had been. All drains were constantly watched and kept clear of the vegetation which grew up very quickly, wet spots were oiled by hand, and the poor female mosquitoes had nowhere to lay their eggs. The results were eminently satisfactory. Before he began, in the latter half of October, 1917, 32 anophelines were found in the daily search of 11 tents in the camp. In the same weeks of the following year, in the whole of the camp and in three adjacent houses, only 8 were found, while from April 22nd to June 3rd not one anopheline was caught in any hut or tent within the camp. The huts in the camp were also made mosquito-proof with wire gauze, and the effect of all this on the health of the troops was striking, whereas in 1917 among 1500 men there had been 220 malarial cases with 28 invalidings and 6 deaths, in the last eight months of 1918 among 2400 British troops there were only 55 new cases, of which but one was infected in Taranto camp, and among 3000 British West Indians not one primary infection was recorded. On the 1917 liability there would have been, among the 3000, 440 cases, 56 invalidings, and 12 deaths, and among the 2400, 370 cases, 50 invalidings, and 10 deaths. So Colonel Robertson's foresight and judgment may be credited with a saving of 800 cases, 100 invalidings, and 20 deaths, and the debt the troops at Taranto owe to the R.A.M.C. will not even by these figures be fully declared, for they take no account of the large numbers of troops who were always passing through the camp in safety. The paper is illustrated with valuable charts, and its detailed discussion of the principles and practice of malarial prevention make it not only informing but interesting, and a valuable record of a worthy feat of preventive medicine.

ALBEE'S OPERATION FOR CARIES OF THE SPINE.

THE advantages of the free exchange of experiences and ideas between British and American medical men during the war are well illustrated in a paper on the Modern Treatment of Tuberculosis of the Spine by Mr. A. Rendle Short.[1] In conversations with American surgeons Mr. Short was greatly impressed by the glowing terms in which they spoke of Albee's operation for tuberculous caries of the spine. It was described to him as "one of the most gratifying operations in surgery." This seems to be his opinion, too, and he has already performed the operation in four cases, with striking success three times and comparative success once. Yet two of his four patients had been treated unsuccessfully for years by other methods. Albee has used the method since 1912 and described it for the first time in Europe at the International Conference of Surgery at Berlin in 1914. It had already been practised for some years in America at the Mayo Clinic. The operation consists of taking a gráft of bone from the tibia, splitting the spines of the vertebræ at the level of the angular curvature, and inserting the graft in the cleft thus made. The spines are split not quite in the middle line, and in addition to the most prominent spine at the apex of the curvature, the four adjoining spines, two above and two below, are also split. When the graft has become welded by firm, bony union to the two vertebral spines above and below the apex of the angular deformity, the five spines form one rigid mass which acts efficiently as a splint. Various modifications of technique have been introduced in recent years, the most important being the use of a semi-circular skin flap to avoid the coincidence of the cutaneous scar with the grafted bone. The operation is subject to the danger, common to all surgical intervention in tuberculous lesions, of spreading the disease. There is also the possibility that the graft may not "take" owing to faulty technique or secondary infection. Dr. Delchef, of Brussels, discusses the operation in *Le Scalpel* of May 1st, 1920, where he states that in 1918 he felt justified by the good results obtained both in Europe and in America to operate on a child of 6, whom he had been treating for two years for Pott's disease in the lower thoracic region. The operation was successful in

[1] Bristol Medico-Chirurgical Journal, March, 1920.

curing the disease, but X ray plates showed a gradual absorption of the graft in spite of extensive contact with spinal bone and without any infection. Such aseptic resorption of the inserted bone is not inconsistent with surgical experience in other parts of the body, but provided that the splint remains in position long enough for the lesion to become healed the method may yet prove of considerable value in certain cases. Mr. Rendle Short believes that, considering the slight risks of the operation and its many advantages, this should be the routine treatment for all cases of tuberculous disease of the spine, with certain reservations, but he has declined to operate in a case in which there were two tuberculous foci in the spine, in another case because several bones and joints were affected, and in a third because paraplegia was present. He also notes that in children under 12 the vertebral spines are so slender that it is difficult to split them properly. This objection holds good for the cervical region at every age. The advantages claimed for this operation are numerous and great. The period of complete recumbency in bed is reduced from 12 or 18 months to two months; the subsequent period during which an apparatus or jacket must be worn is also considerably shortened. And, most important of all, further increase of the deformity is avoided. This operation seems to be particularly suited for working-class patients, to whom the tediousness of more conservative treatment is exceptionally trying. It is probably too early to estimate the proportion of failures to be expected from the procedure, but it appears that non-union of the graft has seldom, if ever, been observed in the absence of gross suppuration. In skilled hands the operation does not involve much shock or hæmorrhage, and it is evidently one which promises to save many patients from disfigurement.

BABY WEEK.

THE scientific tendency to search for and treat only the ultimate cause of such evils as racial degeneration has led to the tracing of a vicious circle from the C 3 adult backwards through the adolescent, the school-child, the infant and its mother, the pregnant woman, and industrial conditions back once more to the young adult. Such continuous reference back leads no further in reform than it does in committee unless a pause is made at each definite stage reached and progress reported. It is satisfactory when the representatives of one section of the public conscience make a stand at one of the stations of the circle and announce their intention of building up a strong edifice of public opinion at a particular point. Four years ago certain people decided that their energies should henceforth be devoted to the care of infants. Realising that endeavour cannot be kept at equal tension throughout the year they formed the National Baby Week Council, to concentrate on an annual effort "to arouse the public to a sense of the importance of infant life, to promote right ideas and ideals regarding maternity and child welfare, to further those methods of safeguarding infant life already existing for its preservation." The welfare of the baby is the particular care of the National Baby Week Council, whose gala week is now being celebrated throughout the country. The fact that a baby's health at birth depends much on that of its mother, and its subsequent development largely on her instructed care, is not ignored by the Council, neither does it lose sight of the fact that a baby is not an end in itself, the chief function of a perfectly good baby being to reach a sturdy maturity. Conferences are being held at Leeds, Manchester, Brighton, Bradford (July 6th), and Wrexham (July 7th), at which the medical speakers will include Dr. C. W. Saleeby, Dr. Eric Pritchard, Dr. H. W. Pooler, and Dr. J. J. Buchan. The subjects to be discussed are widows' pensions, the home and its substitutes, infant-welfare work, and the decay of parenthood. There will also be propaganda meetings, baby shows, fêtes, and mothercraft exhibitions all over the country. There is perhaps no organisation that appeals more to all sorts of men and women than this one, and the latter especially will find congenial occupation combined with social service in the promotion of a firm, plump, and cheerful babyhood. We have no doubt whatever as to the success of Baby Week.

THE SIGNIFICANCE OF YELLOW SPINAL FLUID.

ACCORDING to Dr. Charles H. Nammack,[1] of New York, who discusses the various conditions in which a yellow spinal fluid occurs, the complete Froin's syndrome consists in (1) a spinal fluid which coagulates at once or upon standing; (2) a yellow coloration or xanthochromia; (3) a marked increase in cells and albumin. The coloration appears to be due to the presence of blood pigments, especially bilirubin, and the increased coagulability to an increase in fibrin. In Dr. Nammack's nine years' work at the Meningitis Division of the New York Health Department yellow spinal fluid was found in 96 out of 5801 cases, or in about 1·6 per cent. After excluding 36 cases in which the diagnosis was never confirmed definitely or there was a lack of sufficient data, the cases were as follows: Tuberculous meningitis, 40; poliomyelitis, 13; cerebral hæmorrhage, 3; meningeal hæmorrhage, 1; cord tumour, 1; pachymeningitis, 1; cerebro-spinal fever, 1. A complete Froin's syndrome was met with in only 6 instances—viz., 2 of meningeal hæmorrhage, 2 of tuberculous meningitis, and 2 of poliomyelitis—the rarity of the complete syndrome being attributed to the fact that acute or subacute types of disease were almost exclusively seen. The amount of cerebro-spinal fluid withdrawn in these cases varied from 3 c.cm. to 50 c.cm., and the colour ranged from the faintest yellow to the deepest canary. In the majority of cases the albumin and globulin were considerably increased. Dr. Nammack concludes that in acute or subacute conditions the presence of yellow spinal fluid strongly suggests the diagnosis of tuberculous meningitis or poliomyelitis.

THE MacAlister Testimonial Fund closes to-day (Saturday) and the testimonial to Sir John MacAlister will be presented, in the form of a cheque, at the annual meeting of the Royal Society of Medicine on Wednesday, July 7th, at 4.30 P.M.

WE remind our readers of the Eleventh Annual Meeting of the Oxford Ophthalmological Congress, which will take place on July 15th and 16th, in the University Museum, Department of Human Anatomy. A detailed programme of the Congress will be found in our news column.

MANCHESTER, in common with other provincial centres, has difficulty in forming a nucleus for advanced graduate work. The large influx of students augments this difficulty. Some of the local hospitals, however, have held successful courses open to all qualified men with the object especially of bringing recent work in concise form before local practitioners. The course at the Manchester Royal Infirmary, which began in October, 1919, was continued on successive Tuesday afternoons and ended on June 29th. The members of the honorary staff of the hospital have each given one or two lectures on subjects in which they were most interested, and which were most likely to be useful to general practitioners. The attendance has been good and the course has apparently been appreciated. It is proposed to resume the work in October next.

[1] The American Journal of Medical Sciences, April, 1920.

INDEX TO "THE LANCET," VOL. I., 1920.

THE Index and Title-page to Vol. I., 1920, which was completed with the issue of June 26th, will be published in THE LANCET of July 10th.

THE BRITISH MEDICAL ASSOCIATION AT CAMBRIDGE.

ANNUAL REPRESENTATIVE MEETING.

FRIDAY, JUNE 25TH.

THE proceedings of the session commenced on Friday morning, June 25th, punctually at 10 A.M., in the Examination Hall, with the Annual Representative Meeting, presided over by Dr. T. W. GARSTANG, the chairman.

It was settled to take the agenda in the printed order of the motions, save that certain recommendations of the Council, in reference to the salaries of medical officers of health and their assistants, were relegated to Saturday, when those officers would be represented by their society; and that the Report of the Medical Consultative Councils to the Ministry of Health, the subject of several motions by the Council of the British Medical Association, was set down for debate on Monday.

The Annual Report of the Council, with the balance-sheet for 1919 and the financial estimates for 1920, was then received and adopted, after which the meeting unanimously accepted the recommendation of the Council that the annual meeting of the Association for 1921 should be held in Newcastle-on-Tyne, with Professor David Drummond as President. It was also agreed that the annual meeting for 1922 should be held at Glasgow. In analysing the financial position Dr. G. E. HASLIP, the treasurer, mentioned that the Government had made a payment of £5000 towards the expenses incurred by the Association in respect of the Central Medical War Committee, a sum, however, which met very little more than one-third of the actual expenditure.

Increase of Subscription and Office Salaries.

A recommendation of the Council that on and after Jan. 1st, 1921, the annual subscription to the Association shall be £3 3*s.* for a member resident in any part of the United Kingdom and £2 2*s.* for members resident elsewhere was then considered. To ascertain the feeling of the members, an amendment was voted upon, substituting £2 12*s.* 6*d.* for £3 3*s.*, and after debate was lost, when the meeting adopted, by 116 to 22, the recommendation of the Council. The vote was taken by roll-call in order to ascertain to some extent the local feeling of the dissentients. A debate on the necessity of fixing the salaries of certain new officials in accordance with a definite and rising scale led to highly appreciative remarks by the meeting as to the way in which the work of the Association was being done. The motion was withdrawn.

Organisation: The Transformation of the Association into a Federation of Medical Bodies.

Mr. RUSSELL COOMBE, the chairman of the Organisation Committee, brought forward a recommendation of the Council that the Association should take steps to obtain further powers, without altering its present position as an association of individual members, to become, in addition, a federation of medical bodies. It was pointed out that this proposal had been before the Association for some time, notably in 1914; and has now become topical in regard to the Irish Medical Association, which wishes to be legally independent and yet to work in loyal connexion with the Association.

The following Recommendation of Council was adopted:—

That the Representative Body instruct the Council—

(1) To arrange for there being held at an early date a conference of representatives of the oversea branches, especially the branches in the Dominions, with representatives of the Association at home and with representatives of other bodies, if any, who in the opinion of the Council should be invited to such a conference, with a view to arriving, if possible, at a full agreement as to what should be the lines of the proposed new articles and by-laws.

(2) To report further as soon as practicable to the Representative Body on the subject, with, if possible, such draft alterations of the articles and by-laws as the Council may suggest with a view to taking further powers under the constitution of the Association in the way proposed.

(3) To arrange that the draft new articles and by-laws shall *inter alia*: (*a*) Define the classes of organisations to be admissible, whether directly, or by means of nominees, to membership of the Association. Such classes to include any portion of the Association which may incorporate itself separately but also desire admission on the new basis, and to include also medical bodies outside the Association and bodies representative of the allied professions anywhere within the Empire. (*b*) Assign to the Representative Body the settlement of the general conditions of such membership, including decision as to what shall be the minimum numerical backing, within a body seeking to become such member of the Association, which shall render a request for such membership eligible for consideration. (*c*) Assign to the Council the duty of submitting to the Representative Body, with a view to such membership, the name of any body proposing, or proposed by the Council, to become such member of the Association. (*d*) Assign to the Representative Body the decision as to whether any individual body applying shall be admitted as such member of the Association, and if so upon what special conditions, if any, in the individual case.

The Supplement to the British Medical Journal.

A rider to a motion, which had been accepted, adopting the remainder of the Annual Report, under the heading "Organisation," embodied an instruction to the Council to ensure an adequate setting forth of the current work of the Association in the Supplement of the *British Medical Journal* week by week.

A debate ensued in which it was pointed out that the question had been anxiously considered by the Organisation, Propaganda and Journal Committees, and that the implied criticism had already been largely met. The rider was adopted, when it emerged from the speeches that while there was much criticism of the Supplement because it did not contain certain things, there had been very little support of those responsible for the production of the paper in the way of useful contributions.

Professional Secrecy.

On Saturday morning the following motion, brought forward originally on the previous day in slightly different terms, by Dr. Langdon Down, the chairman of the Central Ethical Committee, was adopted, after a protracted debate:—

That having further considered the question of professional secrecy, viewed from the standpoint of the medical profession, and with special regard to venereal diseases, the Representative Body reiterates the opinion that a medical practitioner should not, without his patient's consent, voluntarily disclose information which he has obtained from such patient in the exercise of his professional duties.

A rider to this motion seeking to pledge the meeting to the view that the medical profession "should be placed on the same footing as to professional secrecy as clergy, barristers, and solicitors," was lost.

Secret Remedies.

A recommendation of Council, put forward by the Central Ethical Committee, was adopted to the effect that a registered medical practitioner should not make use of or recommend any remedy of which the principal ingredients are not disclosed. This was preceded by a debate revealing considerable divergence of opinion, it being the opinion of some speakers that there were remedies the composition of which could not be familiar but which were of proved value in illness. The wide use of secret remedies by medical men was put in evidence in a striking and amusing manner by Dr. COX, the Medical Secretary.

Minimum Salaries for Public Appointments.

An interesting debate on this subject took place on Saturday afternoon, the salaries in question being those of whole-time medical officers and assistant medical officers of health. An invitation had been extended to and accepted by the Society of Medical Officers of Health to send representatives of that society to join in the discussion, and accordingly Professor H. R. Kenwood, Dr. W. J. Howarth, and Dr. G. F. Buchan were present. A very large number of amendments were set down.

Mr. E. B. TURNER, chairman of the Medico-Political Committee, said that a certain scale of salaries had been agreed upon by the Society of Medical Officers of Health for their whole-time members. This scale was the subject of recommendations to the meeting from the Council, and had been arrived at, Mr. Turner said, after anxious attention on all sides, and he urged that if the representatives of the society present could make out their case it would be the duty of the association to support them.

An amendment that the recommendations should be referred back to Council being lost, Dr. G. F. BUCHAN explained and advocated the scale as it affected five classes:—(1) Whole-time medical officers of health; (2) whole-time assistant medical officers of health; (3) whole-time senior medical officers in charge of departments; (4) whole-time medical officers employed in departments; (5) whole-time medical officers in hospitals and sanatoriums. The scale of salaries set down for the first class was as follows:—

Population of administrative area.	Proposed minimum salary.
Up to 50,000	£800, rising to £1000 within a period of not more than 5 years.
50,001 to 100,000 ...	£1000, rising to £1200 within a period of not more than 5 years.
100,001 to 200,000 ...	£1200, rising to £1500 within a period of not more than 5 years.
200,001 to 500,000 ...	£1500, rising to £1800 within a period of not more than 5 years.
Over 500,000	£1800.

With, in addition, bonus according to the Civil Service award in force for the time being.

Dr. Buchan, who spoke with clearness and conviction, pointed out that there were three causes of dissatisfaction among his colleagues: their salaries were too small; their duties and responsibilities had been much increased; and there had been no increase in salaries as the result of rise in expenses, except so far as these were met by the war bonus. He pointed out that the scale of fees proposed, which was the essence of the reforms advocated, was the outcome of joint deliberations between the Society of Medical Officers of Health and the British Medical Association. In answer to questions, he said that there were 1400 medical officers of health in England and Wales, of whom about one-third were whole-time officers. He urged the Association to assist them.

Dr. COX pointed out the extreme difficulty in which the business department of the *British Medical Journal* would be put if the adoption of the scale of salaries proposed were followed, as it must be, by the refusal of advertisements from all Authorities which did not accord with the scale. A letter from the Editor of *The Lancet* was read confirming this view, and saying that in such circumstances every advertisement would have to be returned in the first instance to the Authority to ascertain exactly to which class of officer it applied, and how that officer was affected by the size and population of the administrative area.

Dr. H. B. BRACKENBURY said that the practical question was whether the Society of Medical Officers of Health could fight with success the Authorities and those of their medical colleagues who were not in agreement. He instanced Nottingham, using it as an example only because of its particular size, as a city where the whole-time medical officer of health would, under the scale, receive £2400 per annum. Were they to refuse advertisements offering, say, £2200 and ostracise persons who accepted such a salary? Perfectly suitable candidates would come forward in reply to advertisements elsewhere than in *The Lancet* and the *British Medical Journal*, and the Society of Medical Officers of Health and the British Medical Association would suffer from the rebuff. He advocated heartily the increase of the salaries of the officers concerned, and endorsed a later recommendation of the Council that the following definition be adopted:—

Definition.—An assistant medical officer of health is a medical officer duly appointed as assistant medical officer of health by the local authority to assist the medical officer of health in the general administration of the Health Department, and the carrying out of the various Acts, by-laws, orders, rules, regulations, &c., required to be or usually administered by the medical officer of health; the title assistant medical officer of health to be limited to medical officers carrying out these general duties.

An amendment from Newcastle-on-Tyne affirmed that a substantial addition is needed to all public health salaries, but that it is inadvisable for the Association to commit itself further at present.

MONDAY, JUNE 28TH.

The annual meeting of Representatives continued its sittings on Monday, June 28th, Dr. GARSTANG in the chair. The earlier part of the day had been reserved for the discussion of the

Report of the Ministry of Health Committee.

The Report of the Council under "Ministry of Health," presented by Dr. BRACKENBURY, having been approved, Mr. E. B. TURNER, the chairman, presented a Special Report of the Ministry of Health Committee dealing with the Interim Reports of the Consultative Councils on Medical and Allied Services. He described the work of his Committee, which had been specially directed to the fact that the Reports to the Ministry of Health were interim and not final. An amendment to the adoption of Mr. Turner's Report, put forward by Dr. C. A. BUTTAR and seconded by Sir JAMES BARR, asked the Representative Body to see that the general principles of Lord Dawson's Report were more defined; the Representatives had not had time to digest the arguments. With regard to the establishment of Primary Centres as an essential there were differences of opinion.

Lord DAWSON having put before the meeting the purposes of the Interim Report in a clear and convincing manner, the Representative Body adopted a motion, proposed by Mr. BISHOP HARMAN and seconded by Dr. F. W. GOODBODY, that the establishment of Primary Health Centres was the pivotal idea of the changes recommended in Lord Dawson's Report. This attitude was further upheld in the following motions, put forward by the Brighton division and adopted:—

That in order to attain the objects of an ideal system of Medical and Allied Services it is necessary that the prevention of the occurrence of disease as well as the provision for its treatment should be based on the Domiciliary Medical Service, and that general practitioners should be actively encouraged in the practice of both.

That it be an instruction to the Council to consider and make recommendations as to the scheme which could be submitted to the Minister of Health as requisite for an ideal part-time General Practitioner Domiciliary Medical Service on which all other Medical and Allied Services could be based.

The Ideal Health Council.

An interesting debate ensued upon what should be the proper constitution of a Local Health Authority, in the course of which Lord Dawson explained fully the constitution of the Consultative Councils, their function, and their possibilities.

The following resolution was then adopted unanimously by the meeting:—

That the Representative Meeting welcomes the establishment of the Medical Consultative Council and regards it as an important step in affording essential, organised means whereby the medical profession should exercise its rightful influence on the health policy of the nation.

Dr. BRACKENBURY then moved two resolutions taken, and to some extent adopted by consent, from the Report of the Ministry of Health Committee. The first affirmed the principle that the composition of the Local Health Authority in each area should provide for adequate representation of the medical profession residing in the area, while the second was as follows:—

That for each area there should be established a Statutory Medical Committee to be directly elected by the medical practitioners resident in the area; that the administrative expenses of such Committee should be a charge on the funds of the Local Health Committee; that the duties of this Committee should be to appoint the representatives of the medical profession on the Local Health Committee and on any other committees containing such representatives, and to advise the Local Health Committee on any medical matters; and that this Medical Committee should have the right, whenever it thought desirable, to present its views not only to the Local Health Committee, but also to the Ministry of Health and the public.

The resolutions were approved.

At this point also a unanimous resolution was passed against the principle of a Whole-time State Service.

Resolutions were also passed affirming that postage on the notification of infectious disease should be prepaid by the responsible authorities, and that the fees for post-mortem examinations should be raised by 50 per cent. A resolution was also passed that the fees for police calls should be: day calls 7*s.* 6*d.*, night calls 10*s.* 6*d.* And it was suggested that, as to-day the eight hours day was recognised widely while medical men were on duty all round the clock, for the purposes of adjusting higher night fees, night should be considered to run from 6 P.M. till 9 A.M. the following day.

Report of the Medico-Political Committee.

On a general motion for the adoption of this Report two interesting resolutions were passed among others. It was agreed that the fees for medical witnesses should be raised to 3 and 2 guineas respectively, and that the Council should press for the raising of the fee for the notification of infectious diseases to *5s.*

A debate arose under a motion for the restraint of unqualified practice worded as follows:—

That in the opinion of the Representative Body serious steps should be taken in the public interest by the Association to bring to the notice of Parliament the injurious effects of unqualified practice in medicine and surgery.

In reply to the suggestion that the actions of the British Medical Association in this direction had been ineffective, because the evil had so much increased during and since the war, Mr. TURNER told the meeting that at any rate the Government was now alive to the situation, and that sooner or later legislative remedy might be expected.

Fees for Practitioners Summoned by Midwives.

On a motion that the fees for practitioners summoned by midwives should be amended, Dr. BRACKENBURY said that the difficulty was that while the £2 2*s.* suggested by the Ministry of Health appeared satisfactory in some parts of the kingdom, notably in Scotland, practitioners in many parts of England found the sum insufficient. The following resolution was adopted:—

That the fee of £2 2*s.* suggested in Para. 1 of the Ministry of Health's proposed amended scale of fees for medical practitioners called in on the advice of midwives is too small to enable the Association to urge practitioners to respond to these calls in areas or cases where they are unwilling to do so.

Motions attempting to allot the payment of the fee between patients and the Authority, and to define the period more justly over which illnesses arising out of pregnancy were treated under the responsibility of the Authority, were lost.

TUESDAY, JUNE 29TH.

The proceedings on Tuesday began punctually, Dr. GARSTANG presiding, with a discussion upon the situation of the medical practitioner in respect of

The Vaccination of Insured Persons.

The debate arose out of a resolution, sent up from the Glasgow Southern Division, protesting against the action of the Scottish Board of Health in saddling the profession with the free vaccination of insured persons.

A resolution was passed instructing the Council to obtain legal advice as to whether this service comes within the scope of the agreement with Insurance Committees.

The Limitation of Panel Lists in Glasgow.

A resolution was passed reflecting severely upon the action of the Glasgow Burgh Insurance Committee in attempting to limit panel lists to 1500, in breach of the agreement entered into between the Government and the Insurance Acts Committee.

Public Health and Poor-law.

Dr. Garstang vacated the chair to move the approval of the Representative Body of the Annual Report of Council under "Public Health and Poor-law," and briefly recounted the long and practical help rendered by the Association to the Public Health Medical Service. He called attention also to the vigorous help extended to this work, in their different capacities, by Sir Philip Magnus and Dr. Herbert Jones. The Report was approved unanimously.

The Payment of Voluntary Hospital Staffs.

Dr. BOLAM, Chairman of the Hospitals Committee, submitted the following motion on behalf of the Council, and it was unanimously adopted:—

That for all work for soldiers and sailors, whether discharged or not, for any disease or injuries connected with the war, undertaken at voluntary hospitals, the medical staffs should be adequately remunerated. For the present the remuneration should represent an addition of not less than 25 per cent. to the cost of maintenance of in-patients, and not less than 25 per cent. of the ascertained cost per patient per attendance for out-patients, the additional sum to be placed at the disposal of the medical staff; that in the case of special clinics—e.g., aural and ophthalmic—the fee payable to the medical practitioner should not be less than the fee payable by the Ministry of Pensions for identical or similar services—viz., £2 2*s.* per session.

Paying Patients at Poor-law Hospitals.

A resolution was adopted, asking the Council to arrange for an inquiry and report upon the work of Poor-law hospitals in relation to medical practice outside. During a brief debate it was brought out that there were paying patients who found their way into these institutions, many of which at the present are far from full, and who came accordingly under the care of the medical superintendents, the private practitioners having no access to them.

Paying for Maintenance by Hospital Patients.

The Representative Body adopted a motion—

That the Representative Body is of opinion that the suggested remedy for existing financial straits of hospitals—namely, to demand contributions in aid of their maintenance from the patients, fundamentally alters the basis of the relationship hitherto existing between the honorary medical staffs and the subscribers; and refers the question to the Council for consideration and report.

The Work of the Naval and Military Committee.

Lieutenant-Colonel R. H. ELLIOT, I.M.S., the chairman of the committee, submitted the following as representatives of the Services on the Council for the period 1920–23, and they were duly nominated: Surgeon-Captain Meaden (Royal Navy); Colonel T. D. Barry (Royal Air Force); Lieutenant-General Sir W. Babtie (R.A.M.C.); and Colonel Sir W. J. Buchanan (I.M.S.).

Colonel Elliot then described the work which had been done by the British Medical Association over a long period of years, largely through the assistance of Sir Havelock Charles and Mr. Montague, the Secretary of State, in behalf of the Indian Medical Service. This work, he said, had resulted in raising the Service into a good career.

Sir HAVELOCK CHARLES testified to the work done by the Association in behalf of the medical officers of the Services, and he added that to-day in India a great future awaits the young officer of the I.M.S., but the recruit to that Service must be physically strong and devoted to the work.

Colonel NEEDHAM, Deputy Director-General, I.M.S., said that the British Medical Association's action, while working for reform, had led to a shortage of officers in the Service, and that the logical sequence, now that acceptable terms had been obtained, would be for the Association to recruit for the Service.

A resolution was carried unanimously recording the satisfaction of the Representative Body with the terms now offered to the officers of the I.M.S. Votes of thanks were also passed to the Secretary of State and Sir Havelock Charles.

General Approvals.

The meeting closed with votes of general approval of the annual report and supplementary report of the Council and the election of the new officers and committees.

THE ANNUAL GENERAL MEETING.

The annual general meeting was held, in respect of its first stage, at the Examination Halls, on Tuesday afternoon, Sir CLIFFORD ALLBUTT presiding.

On the evening of the same day the Presidential Address to the Association was delivered in the Senate House, while the honorary degree of LL.D. of the University was conferred upon the following gentlemen:—Sir Clifford Allbutt, Regius Professor of Physic in the University and President of the British Medical Association; M. Jules Bordet, President of the Faculty of Medicine and Director of the Pasteur Institute at Brussels; Dr. Simon Flexner, Director of the Rockefeller Laboratories; Dr. Piero Giacosa, Professor of Experimental Pharmacology at the University of Turin; Sir George Makins, President of the Royal College of Surgeons of England; and Sir Norman Moore, President of the Royal College of Physicians of London.

The ceremony was followed by a reception in King's College, when Sir Clifford Allbutt was presented with the beautiful portrait subscribed for by the members of the Association and painted by Sir William Orpen.

THE MEETING OF THE COUNCIL: RESIGNATION OF DR. MACDONALD.

At the first meeting of the Council for 1920–1921, Dr. J. A. MACDONALD expressed his intention not to present himself for re-election to the office of chairman, an announcement that was received with great regret by this body. Dr. R. A. Bolam, of Newcastle-on-Tyne, was elected in his place. Sir JENNER VERRALL moved, and Dr. T. W. GARSTANG seconded, a cordial vote of thanks to Dr. Macdonald for his eminent services, and speakers representing the medical profession generally in England and Wales, Scotland, Ireland, and the Overseas Dominions, as well as past holders of office in the Association, supported the vote in unqualified terms.

Dr. Macdonald, in a brief reply, explained his resignation as arising out of his feeling that new men should be constantly called upon to serve in these administrative positions in the Association. He thanked his colleagues on the Council for their loyalty to him during his office, pointing out that it was the chairman's duty in the intervals between the meetings of Council to act upon his own initiative, when he had ever striven to make the decisions in accordance with what he believed would have been the sense of the Council in conclave. He concluded by referring to the pleasure that he anticipated deriving from his mission to South Africa in behalf of the Association work.

THE EXHIBITION.

Sir CLIFFORD ALLBUTT opened the exhibition of surgical instruments, drugs, and foods on Tuesday, June 29th. The organising committee are to be congratulated on securing such an admirable building as the Corn Exchange for the purpose. An artistic building, and lofty, with excellent lighting in the shape of an oval glass roof, gave the exhibitors an opportunity of displaying to the best advantage their exhibits. The show was well staged, the tout ensemble was good, and the materials, generally speaking, were of real scientific interest. We doubt if this section of the meeting has come into greater prominence before or attracted more attention.

MEDICINE AND THE LAW.

Does Parental Refusal of Operation Constitute Neglect?

AT the Greenwich police court recently a defendant of foreign origin was summoned for neglecting his daughter, a "young person" 15 years of age, by refusing to allow an operation for adenoids to be performed upon her. At the first hearing it appeared that the father and mother were unwilling to have pain inflicted upon their offspring, that they had been told that the case was not serious, that they regarded the administration of an anæsthetic with apprehension, and were generally anxious, no doubt in good faith, to make all the excuses, and raise all the objections usually heard on such occasions. The magistrate was tactful but firm. After hearing all the evidence and explaining the law to the father, including the nature of the penalties involved, he told him that his attitude was obstinate, stupid, and cruel, and gave him a fortnight to think the matter over. When the adjourned case came up for hearing good advice had had its result. The parents had considered the possibility of the father having to undergo imprisonment if he remained obdurate, and had consented to have the operation performed. It had been performed successfully, so the matter ended happily in the taking of the usual recognisances.

The "calling in a doctor" has no doubt long been realised to be the duty of parents when their children are "ill." This duty has, however, at times been distinguished in their minds from that of having a "surgical operation" performed, and "an operation under an anæsthetic" has seemed to them an alarming step, very different from the administration of drugs. In this attitude they have had a measure of public support. For example, we observe that in commenting upon the case above referred to the *Evening News* said: "Thousands of parents with ailing children will realise with surprise and not a little apprehension that they are liable to imprisonment if they ignore a doctor's advice to have an operation performed." This may indicate the mental attitude of persons who are uninformed upon many other subjects besides their duties as parents; but the law, ignorance of which does not excuse the transgressor, is clear on the subject and in its origin at any rate, older than most of the parents whom it affects. That is to say, the provision of medical aid for children under 14 years of age was first imposed as a duty on their parents by the Poor-law Amendment Act, 1868. No direct reference to medical aid in connexion with the neglect of children was made in the later Prevention of Cruelty to Children Act of 1894 or in an intermediate Act which might have been expected to provide for it. But in 1899, in the case of R. *v.* Senior, in which the Peculiar People were concerned, Lord Russell of Killowen carefully went into the question of this omission, and held that it could not be thought that the legislature intended a step so retrograde as to deny medical attendance to children who had before been entitled to it. He defined the medical aid under discussion as belonging to the class of essential things that reasonably careful parents would provide, and referred to the possibility of occasions arising when the intervention of a surgeon would be included in the treatment necessary. The statute now in force, the Children Act, 1908, includes young persons—i.e., children between 14 and 16 years of age—and, by Section 12, makes it an offence punishable by fine or imprisonment, if a parent (or other person defined as responsible) wilfully neglects in a manner likely to cause a child or young person unnecessary suffering or injury to his health, "including injury to, or loss of, sight or hearing or limb or organ of the body and any mental derangement." The same section adds that a parent or other person liable to maintain a child or young person shall be deemed to have neglected him if he fails to provide "adequate food, clothing, medical aid, or lodging," and further declares that those who cannot themselves procure what is necessary must have recourse to the Poor-law. It will be observed that no obligation is laid upon the medical witness to state with certainty the result of taking or refusing to take any steps recommended, the essential point for the court to consider being whether the alleged neglect is "likely" to cause unnecessary suffering or injury to health. The words quoted which specify injury to sight or hearing, or limb, or organ of the body would be meaningless in connexion with the duty of obtaining medical aid, if "medical" were to be interpreted as excluding all surgical intervention. Attention was called to the bearing of this passage in the section by Mr. Justice Darling in his judgment in Oakey *v.* Jackson, 1914, 1 K.B., p. 216. In that case there was an appeal on the ground that magistrates had wrongly refused to convict, and the operation which the defendant had refused to have performed on his child was for adenoids, so that the Greenwich magistrate had direct authority to guide him. In Oakey *v.* Jackson the magistrates found the facts against the defendant—that is to say, they found that adenoids were causing mental dullness, imperfect breathing, and deafness; that the child was suffering injury to health; and that removal of the adenoids was the only possible remedy. Nevertheless, they had acquitted the defendant, apparently thinking that they had no right to seek to enforce the performance of an "operation," and the Divisional Court ruling otherwise sent the case back to the magistrates for their reconsideration.

An important point, however, expressly laid down in Oakey *v.* Jackson must be borne in mind. Medical men concerned in such cases should note that a refusal to allow an operation is not necessarily such a failure to provide adequate medical aid as to amount to wilful neglect causing injury to health. The question in each case is one of fact to be decided upon the evidence given, and the magistrates must take into consideration the nature of the operation and the reasonableness of the parents' refusal to permit it. "Wilful" neglect in the section has also been definitely

held to mean neglect that is wilful and intentional and not arising through accident or inadvertence. It will be seen from the above that the law on the subject of operations to children has existed for some little time, and that it is clear and comprehensive. The publicity given from time to time to cases which arise under it when parents allow their apprehensions or their ignorance to render their conduct "unreasonable" should have made it fairly familiar to all. There is, moreover, in such cases a right to be tried by a jury, but it must be claimed before the charge is gone into by the magistrate.

The Danger of Headache Powders.

At an inquest held recently at Grimsby the medical evidence attributed the death of a woman to the taking of a "headache powder," combined with a full stomach and heavy clothing. The coroner informed the jury that an analysis of similar powders made for the British Medical Association showed that "a powder" would contain approximately 6·3 gr. of acetanilide. Medical evidence as to the effect of the drug was given, assigning 5 gr. as a dose which might produce collapse. A verdict of "Death by misadventure" was returned by the coroner. It is to be regretted that he did not define the "misadventure." A rider might have been useful to the effect that it was a "misadventure" or "misfortune" for such as the deceased woman that the law should allow the unrestricted sale of possibly dangerous drugs to ignorant persons under the guise of "patent" medicines.

Advertisements in the Medical Press.

The efforts of the Worcestershire County Council to secure ten medical men in connexion with its medical service scheme at salaries of £450 per annum have already been noted in our columns.[1] At a recent meeting of the Council the chairman, Mr. Willis Bund, who was himself one of those who expressed anger at the refusal of *The Lancet* and the *British Medical Journal* to publish the Council's advertisements, had to report to the meeting that advertisements of the posts had been duly inserted in accordance with the Council's instructions by the committee in the lay press. The committee had had many replies to these, but he was obliged to add that nearly all were from persons not suitable for the posts, and that out of the "very small" number who were apparently regarded as comparatively suitable only one could be finally selected for possible appointment. There were, Mr. Bund said, a large number of Irishmen and some Scotsmen among the candidates, but they had not had experience in the class of work which the Ministry of Health required, and he very much doubted whether the Ministry would have approved the appointments. Discussion followed. The Council was advised on the one hand to "put its foot down," and that there were "young men walking the hospitals in London who would be only too glad to accept the salary offered." They were also reminded, not unreasonably, that the posts involved no work at night or on Sundays. On the other hand, Dr. H. E. Dixey, who presented the case from the point of view of the medical profession with clearness and force at the first meeting on the subject, brought to the notice of the Council that salaries such as it was refusing to offer were already being paid in other counties, and that the whole medical service of Worcestershire would be stopped if it did not appoint medical officers. Eventually a motion to give the committee power to go beyond £450 per annum as the salary for the posts offered was carried. The £500 per annum now to be offered as a commencing income can hardly be regarded as the equivalent of more than £250 per annum in 1913. It is better than £450 as a salary with which to commence, and that is all that can be said with regard to it. The Worcestershire County Council, and more particularly those who voted for the increase, are to be congratulated upon having discontinued a struggle for economy at the expense of efficiency, which has had as its result the waste of money spent in useless advertisements and of several months of valuable time.

[1] THE LANCET, May 1st, 1920, p. 979 June 5th, 1920, p. 1230.

NOTES ON HOUSING.

(FROM AN AMERICAN CORRESPONDENT.)

The Problem in America.

NOTWITHSTANDING the estimate of the United States labour department that at the close of the war there was a deficiency of 1 million houses, the problem in America cannot be considered as serious as it is in England. The rate of construction of new houses diminished steadily from 1909 to 1918, and although it has risen since that date there is certainly leeway to be made up. A considerable part of the present tension is due to the influx of workers from country districts to large towns in search of the high wages which were recently offered by war industries. At present there are many houses unoccupied in certain country districts. Housing reformers are confident that in a few years the need for buildings of any kind will have disappeared. Their attention is, therefore, mainly concentrated upon the task of maintaining a high standard of planning and construction in the houses at present being built. In this they are aided by the standards drawn up by Mr. Lawrence Veiller, secretary of the National Housing Association, on March 7th, 1918, and subsequently adopted with some slight modifications by the Housing Bureau of the Department of Labour. The standards, it is said, are not intended as inflexible requirements, but any plans which fail to conform to them are not likely to be accepted unless supported by very strong reasons. The standards are contained in a pamphlet[1] of 15 pages, which should be procured by all interested in hygienic housing, for every detail of construction, and even of furniture, has received careful attention. The paragraph on ventilation gives a fair idea of the general standard.

"17. *Ventilation.*—Every room to have at least one window opening directly to the outer air. Two windows in each room generally preferred; one window sufficient in small bedrooms. Each room to have a window area of not less than 12 square feet.

Cross ventilation as direct as possible to be provided through all rooms, through windows, transoms, or doors; communicating door recommended between front and rear bedrooms in row houses.

Every bathroom to have a window of not less than 6 square feet opening directly to the outer air.

Every water-closet compartment to have a window of not less than 4½ square feet opening directly to the outer air. A skylight in the roof, with an equal amount of glass area and provided with adequate ventilators, will be accepted in lieu of such window, but skylights are not desirable."

The Housing Corporation set a good example when in July, 1918, they were entrusted by Congress with $100,000,000 to be spent on housing. Refusing to construct temporary shelters, the Corporation set to work to build permanent dwellings, and provided not only for ideal planning but also for adequate travelling facilities for the inhabitants. The Corporation has received a good deal of criticism on account of the expense incurred per house—the average cost at Bridgeport, Connecticut, was $7263, but temporary buildings would have cost $2000 and would have been of little "salvage value." More important still, the moral value of the Corporation's activities would have been lost.

A Committee of Women Graduates.

It is impossible for the English visitor in America not to be struck by the attention which the more leisured classes devote to various forms of social service, and by the scientific spirit with which they approach the various problems of social need. This characteristic is well illustrated by the formation early in 1917 of a committee on housing by the Association of Collegiate Alumnæ, a national organisation with a membership of over 8000 women graduates. The committee reported on April 2nd last, and we learn from an article in the current number of *Housing Betterment*[2] that in addition to formulating principles of housing reform "to be attained through restrictive and constructive housing legislation and town planning," they have already

[1] Standards recommended for Permanent Industrial Housing Developments, Department of Labour, Washington, 1918.

[2] Housing Betterment, a journal of Housing Advance. The National Housing Association, 105, East Twenty-second-street New York. May, 1920.

established 46 local housing committees for educational propaganda along the lines determined. The same number of this journal announces that the University of Wisconsin is now offering a course in City Planning and Housing. The course will deal with (1) City Planning; (2) the Housing Problem in General; (3) Industrial Housing; (4) Parks and Playgrounds. It is to be conducted by Professor Leonard S. Smith.

Ourselves—as Others See Us.

It is a salutary exercise to read an American's criticism of our own housing problem and of our methods of dealing with it. The opportunity is given by Mr. F. T. Miller in a pamphlet just published.[3] Some of the criticisms are undoubtedly deserved, though we doubt if Mr. Miller has quite realised how large is the problem with which this country has to deal. Some of the criticisms, as, for example, that precious time has been lost in "discussion of substitutes for unavailable building materials" appear to us to be unfounded. The two most important, however, are worthy of some consideration. It is said that after subsidising the tenant we have now by the Act of 1919 instituted a policy of subsidising the producer. Mr. Miller holds that it is only by subsidising the owner that a proper impetus will be given to private enterprise. He has apparently overlooked the fact that under the present law any private house of the required specifications built before Dec. 23rd, 1920, will receive the full Government subsidy, and that by this arrangement the owner of the house pays £180 less to the builder than he would otherwise have to pay. We grant that this is only temporary legislation, and it may be that a wider and more permanent scheme is desirable. We see, however, an objection to the use of Mr. Miller's incentive of "unearned increment" to tempt the private owner; for unearned increment is most readily acquired on the margins of large cities.

Philadelphia, Pa., U.S.A., June 10th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

Scottish Hospital and Nursing Services.

THE Scottish National Health Insurance Commissioners' report on the hospital and nursing services in Scotland has just been issued. It states that the lack of accommodation in voluntary hospitals is mainly surgical, but that it also extends to convalescent treatment, epilepsy, neurasthenia, paralysis, chronic diseases of the heart and respiratory organs, and incurable diseases generally. Many of the smaller hospitals are badly equipped with modern appliances. In hospitals controlled by the local authorities more accommodation is needed for cases of tuberculosis, for infectious diseases in certain thickly populated parts, and for mental cases. There is no evidence that the income of voluntary hospitals is diminishing, but it does not grow in amount sufficient to meet the increased calls. There is need for the greatest economy in utilising and extending the present hospital services. For convalescents and chronic cases use might be made of holiday homes, at present open only during the summer months, and possibly also of some of the auxiliary hospitals at present in existence. The Commissioners draw attention to the present casual relationship between the general and special hospitals, and suggest greater coöperation; they also draw attention to the waste entailed by several hospitals in a centre making separate appeals to the public, instead of combining their efforts. The report pays a tribute to the valuable nursing services rendered, but suggests that the time has come for reorganising in order to obtain better conditions for those engaged in the work, and still further to improve its efficiency.

Small-pox Epidemic in Glasgow.

The outbreak of small-pox in Glasgow as yet shows no signs of abating, and fresh cases are still being reported daily. The disease, however, does not appear to be spreading with any increase of rapidity, as the number of fresh notifications remains about the same—namely, four to six per day. Since its commencement the epidemic has been almost entirely confined to Glasgow, an occasional case only having been seen in other districts. The danger period, however, is just approaching, when the people of Glasgow enjoy their term of holiday. It is customary for them to go in large numbers not only to the West Coast seaside resorts but to many places farther afield, particularly to Fifeshire and to Midlothian. It seems not unreasonable, therefore, to fear that the holiday period may be accompanied by a much greater dissemination of the disease than has hitherto been witnessed.

Edinburgh Royal Infirmary.

The great campaign to raise funds for the maintenance and improvement of the Royal Infirmary has been most energetically carried out during the last few weeks, and the organisation of the appeal certainly reflects great credit upon those undertaking its direction. No effort has been spared to bring it before public notice and to make it a success. The first list of subscriptions, amounting to just over £50,000, bears witness to the many functions which have been promoted in its aid, and to the cosmopolitan nature of those who are endeavouring to render assistance. The remarkable demonstration which took place on May 22nd in Edinburgh and throughout 17 Scottish counties showed the complete unity of all classes in supporting the Royal Infirmary. The Edinburgh demonstration took the form of a grand parade, which commenced from the King's Park at 6 P.M. and traversed all the principal routes of the city. The procession was several miles in length and took about an hour and a half to pass any fixed point. It was certainly one of the largest—if not the largest and most representative—of all demonstrations which have ever been held in Scotland. A gratifying feature was the universal response made by the various trade organisations, friendly societies, and other similar bodies. It was apparent to everyone that an immense amount of trouble had been taken by those participating to ensure the success of the parade. Every trade carried suitable emblems which indicated the particular occupation of the bearers. Many lorries and other conveyances were decorated in comic style and gave rise to much amusement. Prominent among these were representations of patients in bed in typical infirmary garb, X ray apparatus, and various hospital departments and laboratories. The work of the students was much in evidence, and many of their societies, the Officers' Training Corps, and numerous bands also took part. There were a large number of collectors in fancy dress, and the immense crowds of onlookers lining the streets responded in a liberal manner. The unanimity of all classes, and their enthusiasm, provided a remarkable tribute to the high esteem with which the work of the Royal Infirmary is regarded by the public of Scotland. In the course of this month a special appeal has been sent to every householder in Edinburgh, and it is hoped for a liberal response. The sum required in all is a large one—£250,000—and its attainment is essential if the institution is to be kept efficient and up-to-date.

June 29th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

A National Institute of Hygiene.

THE creation of a Ministère de l'Hygiène et de la Prévoyance Sociale by the present Government has brought with it the establishment in Paris of a vast national Institute of Hygiene, which will coöperate with the administrative side of the Ministry in the technical organisation of research work, the propagation of knowledge, and the appointment of officials. The Academy of Medicine has been consulted on these great projects, which have already occasioned much dissension in its ranks. M. Léon Bernard, professor of hygiene at the Faculté of Paris, has submitted to a committee the text

[3] The Housing Situation in England and the United States, by F. T. Miller. F. W. Dodge Company, New York. 1920.

of a scheme which he has formulated, obviously in conjunction with M. Breton, Minister of Hygiene. The institute will have five sections—epidemiology, social hygiene, dietetics, industrial hygiene, and sanitary engineering. Other departments may be foreseen if to this central institute are to be attached other services now spread over different ministries, such as school hygiene, colonial hygiene, and international legislation on hygiene. Each of these sections will have a research department, a teaching department, and probably a corresponding administrative department. The first will comprise the laboratories and all experimental work and statistical inquiries. The teaching will vary in standard according to whether it is addressed to medical students, to graduates who desire to specialise, or to the health staff about to be formed—nurses, health visitors, chemists, sanitary inspectors, and so forth. According to M. Bernard's report, the teaching would be affiliated to the University and would be under his own personal direction as the professor of hygiene of the Faculty. However, M. Delorme, the Inspector-General, has already formulated objections against this centralisation, which he considers unnecessary and costly—the cost of creating new posts and of the staffing of the teaching laboratories would run into some 700,000 francs. He also considers that centres in the districts concerned are more likely to deal understandingly with local problems. Certain conditions of hygiene are found in the north, others in the south, and others in mountainous regions. The needs of naval and colonial hygiene are better appreciated at the ports than in Paris. The provincial faculties have chairs of hygiene which are inspired by local needs and have developed traditions which should not be disturbed. These objections appear sound and will doubtless carry weight, but they do not interfere with the necessity of coördinating all these diverse efforts; this can only be achieved by a national institute attached to the Ministry of Hygiene and situated in the capital. The results of researches and inquiries made by departmental committees must have an official focus if they are to give rise to the formulation of useful general regulations. In a word, while it is desirable that work should be undertaken wherever it can be usefully performed, the practical application of the principles which emerge is only possible under a single authority. It is necessary to decentralise research and to centralise organisation. This is certainly the spirit of the new Ministry of Public Hygiene. Parliament cannot be said to have stinted this Ministry of money, since at a time of rigid economy it has even allocated a sum in excess of the Minister's demands.

A Giant Nursery.

Professor Pinard, now a Deputy for Paris in the new Chamber, has prepared a scheme for the adaptation of the asylum for the insane, called Asile Nationale de Charenton, into a nursery with room for 1500 children with their mothers. The aim is to establish the most modern and the largest school of puericulture in Europe. The inmates are to be removed before July 31st to give place to the infants. M. Breton, Minister of Hygiene, has recently confirmed the news, and has explained his reasons for adopting the scheme. During last year and these last few months thousands of children have died from lack of care. The maternity hospital and all the lying-in and convalescent homes were filled. The sick could not be kept there. Statistics show figures of infant mortality which are really alarming, and the creation near Paris of an institution of modern puericulture has become urgent. The more serious patients can remain at Charenton for two months, and 9000 children a year should thus be saved. This would make it well worth while to have moved 400 of the insane into the country, where the departmental asylums have 1200 vacant beds. The papers say that this giant nursery will receive patients from August, but the alienists are not accepting without protest the suppression of the most important of the institutions of their specialty in the Paris district. Under the leadership of Dr. Antheaume and Dr. Toulouse an effort was made by many Deputies to wreck the enterprise in the Chamber. They made the point that the Charenton Asylum only accepts paying patients whose relatives have an actual claim upon the administration, and will not allow their friends to be transported away from Paris without their consent. They also object on the score of the expense originally incurred in the adaptation of Charenton Asylum to its purpose, which will be a dead loss; further, they question the advisability of such a vast conglomeration of children.

June 28th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Colpoplasty from the Ileum.

THE problem offered by malformation or complete absence of a vagina in an otherwise healthy female not infrequently presents itself to the surgeon. Professor Waibl demonstrated at a recent meeting of the Gesellschaft der Aerzte of Vienna a case in which he succeeded in obtaining an excellent result in a female, aged 26, by the following method. The patient, a well-developed healthy girl, had no vagina and desired to marry. Professor Waibl first made a channel between rectum and bladder up to the peritoneum. Then an abdominal section was performed; 12 inches of the lower segment of the ileum were separated, short-circuited, and lateral anastomosis performed. The piece of gut was removed, both ends being carefully closed, and was doubled on itself and then pulled down into the pre-formed channel, perforating the peritoneum. Having closed the abdominal wound, the surgeon fixed the apex of the portion of ileum pulled down to the opening of the artificial channel with silk sutures. The lumen was opened with a Paquelin cautery, and the result was an introitus vagina, patulous for one finger. This was dilated with laminaria for several weeks. The vagina was thus at first a double channel, but usually one of the portions gets wider, while the other narrows down so as not to be palpable. At present the canal is wide enough to admit two fingers. The secretion from the artificial canal is insignificant and not irritating to the vulva. Several methods have been devised to produce a functioning vagina, but the use of the colon or rectum is not so satisfactory. Care must, of course, be taken to use only healthy intestine.

Therapeutics and Pathology of so-called Grippe.

At a recent meeting of the Vienna Medical Society a discussion took place on the pathology and treatment of the severe epidemic of encephalitis lately prevalent in the city. Sometimes lethargic and sometimes choreiform in its manifestations, the term "grippe" has been generally used to designate it, leaving open the question of its precise ætiology. Dr. Neuda spoke of the results of his investigations, which suggest that the chief attack of the disease is directed against the peripheral circulatory system. He studied chiefly the convalescent stage, which showed the following prominent symptoms, all pointing to irritation of the vaso-constrictor system: (1) extreme dilatation of the pupils, which are most susceptible to weak cocaine solutions; (2) an "anæmic exanthem" on the wrist, the forearm, and the dorsum of the hands persisting for weeks, similar to the disseminated œdematous spots in the brain seen in cases of encephalitis; (3) extreme anæmic dermography; and (4) severe salivation. Similar symptoms occur after extensive burning, also caused by irritation of the peripheral system. Dr. Neuda supposes that the constrictor condition manifested in convalescence is due to a dilated paralysed condition of the blood-vessels during the disease. As regards treatment, good results have been obtained by intravenous injections of a 10 per cent. aqueous solution of a combination of chloride of calcium and urea, staphylococcal vaccines, and horse serum, and hot baths have also been useful. Investigations conducted by Dr. Pollak and Dr. Pfeiffer showed that strychnine did not have the desired effect of raising the blood pressure for a protracted period. More effect can be obtained from caffeine or adrenalin, the

latter being less reliable. A combination of camphor with papaverin gave excellent results; the latter remedy acts directly on the coronary vessels and the heart itself, and has a useful sedative effect. Professor Schlesinger advocated the use of a combination of 5 c.cm. of a 1 per cent. solution of chloride of calcium in physiological NaCl solution, with 1 cm. of digipuratum; daily injections were found very useful in the cases of malaria complicated by grippe. Dr. Epstein gave details of a case of grippe affecting a 31-year old doctor, who died about a year after having suffered from the disease. His peripheral vessels, chiefly of the abdomen, showed severe defects of the muscular coats, proliferation of the interstitial tissue of the intima, and atheromatous changes. In the coronary arteries the media was partly calcified, as well as the elastica interna, with the proliferation noticed above. It seems that during the grippe necrosis of the contractile and elastic elements of the peripheral vessels takes place.

Death of Professor Kretz.

A few days ago Professor Kretz, one of the last living pupils of Kundrat, died after a protracted illness. He was born in 1865, and after studying in Vienna, became the professor of pathological anatomy in Prague and later in Würzburg. His investigations were directed to the physiology and pathology of the liver, and dealt also with diphtheria and serotherapeutics. His papers on antibodies and immunity, on disturbances of metabolism and the pancreas, as well as on embolism of the lung, are most instructive and afford a clear insight into the problems of these conditions. Although ill for many years—he had given up public work as teacher and returned to Vienna—he volunteered at the beginning of the war to serve in military hospitals, and was one of the leaders of the sanitation campaign which succeeded in stamping out war-born diseases from the "hinter-land." His death, though not unexpected, came as a severe shock to his numerous friends and pupils.

June 18th.

MEDICAL GOLF CHAMPIONSHIP.

THE Medical Golf Championship for this year was played for on the course of the Northwood Golf Club on June 24th, and was won by Mr. R. R. Cruise, with the score of two up on "bogey," winning at the same time THE LANCET Challenge Cup. Mr. T. H. P. Kolesar was awarded the Henry Morris Challenge Cup and the gold medal of the Medical Golfing Society for the score of five up on "bogey." In Class I., for players with handicaps of seven and under, the first prize was taken by Mr. Kolesar, of eight and over, the first prize was gained by Dr. G. E. Haslip.

THE LANCET Challenge Cup, held by Mr. R. R. Cruise, the medical golf champion for the year 1920. Dr. M. J. Bulger was champion in 1914, since when the contest has been in abeyance.

Public Health.

REPORTS OF SCHOOL MEDICAL OFFICERS.

Northampton.—In this county borough the groups of children systematically examined have hitherto comprised only the entrants and the leavers, and cases specially brought forward as needing medical care. From the present year onwards the intermediate group of children from 8 to 9 years old will also be systematically examined according to the usual practice. The total number of entrants and leavers so inspected in 1919 amounted to 3059. Amongst these only one case of definite pulmonary tuberculosis was discovered, and only 35 cases of defective nutrition. In 1918 there had been two epidemic "waves" of influenza, and in 1919 a third wave caused 873 cases among the school population, of which 790 were reported in February and March. The condition of Northampton children as regards vaccination is remarkable. In 1918 the percentages vaccinated of the particular ages 4, 5, and 6, were found to be 12·85, 15·06, and 18·87 respectively; in 1919 these percentages were only 9·00, 10·72, and 11·05 respectively. No provision is made for the adequate teaching of dull or backward children, "and they are at present compelled to waste much of their time in school." Neither is any provision made for open-air education. Dr. G. H. Skinner, the school medical inspector, dwells on the importance of this, which has been conclusively proved to be of the greatest and most lasting benefit to the majority of children. There is a sanatorium school for active tuberculosis cases, and with assistance given by the Northampton Crippled Children's Fund most of the children afflicted in this way are able to attend school comfortably, being provided with the necessary appliances. A special report by Mr. F. E. Ward, the organiser of physical training, furnishes interesting details as to the procedure adopted. He emphasises the importance of "a daily lesson of at least 20 minutes actual physical exercise in pure moving air"; he advocates Rugby football for boys and cricket for girls. From a return as to the employment of school children out of school hours, it appears that 613 boys and 203 girls do work of various kinds, chiefly going on errands (477 children), and delivering newspapers (136); 170 children work before school hours; 147 work after school hours; 30 children work before school hours, *also* during the midday interval *and* after school hours; 727 children work on Saturday in addition to other days. "It will be obvious from the above that the by-laws regarding the employment of children of school age are more honoured in the breach than in the observance." The Employment of Children Act, 1903, as amended by Section 13 of the Education Act, 1918, came into force on April 1st, 1920. A new set of by-laws will therefore be necessary, and Dr. Skinner "would urge that the employment of children before school hours be not permitted, and that the by-laws be strictly enforced." If the Northampton ratepayers could be brought to understand that a great deal of their money is wasted in the endeavour to teach children, whose capacity for being taught must be materially diminished by fatigue, due to the work they have to do out of school, there would probably be little opposition. The number of necessitous children fed has fallen from 160 in 1917 to 109 in 1919, and the total number of meals supplied from 70,701 to 41,659. The dietary is excellent and varied. Much good work has been done at the school clinic, where 2891 defects were treated (with 2521 cases), mostly the usual skin, eye, and ear affections. There was a considerable increase in scabies, and it is to be hoped that the recommendation that hot baths should be available at the clinic may be carried out. The difficulty in getting children to wear glasses when they have been prescribed is referred to: "Not unnaturally many children dislike wearing spectacles, and the facility with which they are forgotten or mislaid or lost is remarkable." As a routine procedure a letter has been sent to the head teachers of all children who have been provided with glasses, asking their help to ensure that they are regularly used.

Scarborough.—At Scarborough 1875 children were examined in the code groups during 1919 and in addition 325 special cases. An important but disquieting statement is made by Dr. C. J. W. Tatham, the school medical inspector, as to the increasing neglect of vaccination in this town, which has hitherto held a high reputation as a health resort. Among the children of 12 years of age examined the percentage bearing successful marks of vaccination was 53·64 in the boys and 49·31 in the girls. Among those of 8 years the percentages were 31·22 and 29·14, while in the group of entrants only 26·79 per cent. of the boys and 25·46 per cent. of the girls showed successful marks. For children of all ages taken together the successful vaccinations (which in 1910 had been 44·77 per cent. in the boys and 44·42 in the girls) had fallen to 35·41 and 33·46 per cent. respectively. On the other hand, of 267 special entrants of all ages (newcomers to the town) the proportions of successfully vaccinated children were 66·40 and 61·26 per cent. respectively. As Dr. Tatham points out, "the protection against small-pox afforded by vaccination is being increasingly neglected in Scarborough, the younger children showing the smallest percentages of successful vaccination. ..... The marked neglect of vaccination here indicated may prove of grave significance should small-pox become epidemic in this part of England." If the children in question were to pass all their lives in Scarborough they might conceivably not be injuriously affected; but if their avocations call them to other parts of the world where they may, or indeed will, be in danger of infection, the generation that is growing up will certainly not arise and call their parents blessed. Of course, infection might be introduced into Scarborough any day, with consequent epidemic spread among the unprotected child population. The resulting loss of life in the children and of prosperity in the town can be imagined. The state of nutrition of the school children has not been injuriously affected by the war conditions of the past five years; in 1913 the proportion found to be actually badly nourished was 1·06 per cent., while 16·28 per cent. were considered to be subnormal; in 1919 these proportions were 1·01 and 5·54 per cent. respectively. "Salaries and wages have risen, there has been less unemployment, less poverty, and these have resulted in more food and better clothing." A very satisfactory feature is that "the increased amount of money available has to a large extent been spent on the children." The figures for clothing and for footwear are also considerably better than in 1913; 2·83 and 2·03 per cent. unsatisfactory, compared with 6·94 and 6·73 per cent. On the other hand, war conditions entailed the rationing of food, and it appears that in place of such valuable foods as milk, butter, and eggs substitutes have had to be used, with deficiency of vitamine constituents; and that this has led to spread of tuberculosis, influenza, and increased susceptibility to infectious disease. There were 222 cases of diphtheria with 28 deaths, a continuation of the prevalence in 1918; a large number of cases occurred among girls at the Gladstone-road school in November and December; all the girls were swabbed (353), and 55 were found to be bacteriologically positive. The department was closed for a fortnight before the Christmas holidays, and no more cases occurred. No drainage defects were discovered, but a "general dustiness" was complained of. It was arranged that all woodwork, desks, chairs, &c., should be wiped over with damp cloths soaked in cresol solution after the rooms had been swept and cleaned. With regard to the employment of children after school hours, as Scarborough is not an industrial town, there are not very many children affected; in 22 cases detrimental results were reported by head teachers. Although the situation and surroundings of Scarborough do not appear such as to make an open-air school a necessity, in view of some increase in tuberculosis, Dr. Tatham recommends the establishment of such a school for children that are physically defective. Much good work has been done in the dental department, where 1960 children have been examined and 1204 treated. As to the remedying of defects generally, the results have been most satisfactory. Out of the whole number (1486) treatment has been carried out in 92·79 per cent. of the cases.

URBAN VITAL STATISTICS.

(Week ended June 26th, 1920.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at nearly 18 million persons, the annual rate of mortality, which had declined from 13·8 to 10·6 in the six preceding weeks, further fell to 10·1 per 1000. In London, with a population of nearly 4½ million persons, the annual death-rate was 10·3, or 0·3 per 1000 above that recorded in the previous week, while among the remaining towns the rates ranged from 4·5 in Enfield, 5·1 in Swindon, and 5·4 in Eastbourne and in Oxford, to 16·7 in Great Yarmouth, 16·8 in Exeter, and 19·1 in West Hartlepool. The principal epidemic diseases caused 200 deaths, which corresponded to an annual rate of 0·6 per 1000, and comprised 69 from infantile diarrhœa, 50 from measles, 40 from diphtheria, 33 from whooping-cough, 7 from scarlet fever, and 1 from small-pox. Measles caused a death-rate of 1·6 in Swansea, 1·8 in Leicester, and 2·0 in Great Yarmouth, but the rates from the other diseases showed no marked excess in any of the towns. The fatal case of small-pox belonged to East Ham. There were 1668 cases of diphtheria, 1646 of scarlet fever, and 3 of small-pox under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 1705, 1654, and 5 respectively at the end of the previous week. The causes of 14 of the 3455 deaths in the 96 towns were uncertified, of which 6 were registered in Birmingham and 2 in Middlesbrough.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2½ million persons, the annual rate of mortality, which had been 13·6, 12·7, and 13·3 in the three preceding weeks, fell to 11·5 per 1000. The 266 deaths in Glasgow corresponded to an annual rate of 12·5 per 1000, and included 15 from infantile diarrhœa, 5 each from small-pox and measles, 3 from whooping-cough, 2 from diphtheria, and 1 each from enteric fever and scarlet fever. The 74 deaths in Edinburgh were equal to a rate of 11·3 per 1000, and included 3 from diphtheria and 1 from whooping-cough.

Irish Towns.—The 116 deaths in Dublin corresponded to an annual rate of 14·6, or 2·5 per 1000 below that recorded in the previous week, and included 4 from whooping-cough, 2 from infantile diarrhœa, and 1 each from enteric fever, measles, and diphtheria. The 109 deaths in Belfast were equal to a rate of 13·8 per 1000, and included 2 from whooping-cough and 1 each from scarlet fever, diphtheria, and infantile diarrhœa.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Cmdr. W. H. Daw placed on retired list at own request.
Temp. Surg. Lieut. A. W. McRorie transferred to permanent list.
Lieut. A. H. J. Stokes placed on retired list at own request.

ROYAL NAVAL VOLUNTEER RESERVE.

J. H. Garner-Howe reinstated in R.N.V.R. as Surg. Lieut. Comdr.
Surg. Cmdr. F. W. Smith placed on retired list.
The King has conferred the Royal Naval Volunteer Reserve Officers' Decoration on Surg. Cmdr. H. Reah.

ROYAL ARMY MEDICAL COLLEGE.

Lieut.-Col. J. C. Kennedy, R.A.M.C. to be a Professor.

ROYAL ARMY MEDICAL CORPS.

Major A. B. Smallman relinquishes the temporary rank of Lieutenant-Colonel.
Temp. Major C. H. G. Ramsbottom relinquishes the acting rank of Lieutenant-Colonel.
Temp. Capt. A. W. Willcox relinquishes the acting rank of Major on ceasing to command troops on a hospital ship.
Temporary Captains relinquishing the acting rank of Major: J. A. C. Roy, H. L. Neil, W. H. Hardy, T. C. Ritchie, R. E. H. Leach, R. MacDonald.
Capt. A. N. R. McNeill to be temp. Major whilst specially employed.
Capt. G. J. Keane retires, receiving a gratuity, and retains the rank of Major.
To be Captains: Capts. (from Special Reserve) J. W. Cannon, D. H. Murray, A. K. Robb.
Capt. H. G. Dresing, late R.A.M.C., to be Captain.
Temporary Captains to be Captains: E. Underhill, W. Millerick, J. V. McNally, J. S. K. Boyd, C. M. Forster, J. H. Sharpe, L. M. Rowlette, D. J. MacDougall, D. Crellin.
Captains, from Special Reserve, to be Lieutenants and [to be temporary Captains: J. R. S. Mackay, W. L. M. Gabriel.
Officers relinquishing their commissions:—Temp. Major O. Challis (retains the rank of Major). Temporary Captains granted the rank of Major: L. Meakin, G. D. McLean, E. L. Mackenzie. Temporary Captains retaining the rank of Captain: P. G. A. Bott, F. De C. Keogh, D. Craig, J. W. Edington, G. M. Bluett, J. L. D. Lewis, J. F. Nicholson, K. D. C. Macrae, J. R. Mitchell, B. M. Carruthers, Temp. Capt. J. P. Mitchell (Captain, R.A.M.C., Spec. Res.).

ROYAL AIR FORCE.

Capts. C. F. Eminson, A. A. Wilkinson, and M. Hocken are transferred to the unemployed list.

Correspondence.

"Audi alteram partem."

THE PELLAGRA OUTBREAK IN EGYPT.

To the Editor of THE LANCET.

SIR,—In a paper appearing in THE LANCET of May 8th under this title Dr. J. I. Enright gives an account of pellagra amongst German prisoners of war in Egypt with observations upon the food factor in the disease. This contribution is of great interest with respect to several clinical points and very important in its bearing on the fundamental question of the ætiological nature of the disease. It is this latter phase alone that I desire briefly to consider. As the results of his study in relation to the causation of the disease he concludes (p. 1003) that a "food deficiency" can hardly be considered as of paramount importance. In his view "a critical analysis of the diets which these German pellagrins ate before capture and during their period of captivity prior to the onset of the eruption is sufficient to explode the food-deficiency theory as a predisposing factor. These diets were ample, both in quantity and quality, for any possible requirements, and were of such varied composition that it is perplexing to understand how they could have been improved." If, as Dr. Enright reports, these German pellagrins actually *consumed* before capture and during their period of captivity prior to the onset of the eruption diets that were ample both in quantity and quality for any possible requirements, then it must be granted that the "food-deficiency" theory is, indeed, exploded. Evidently the question upon which the validity of this conclusion depends is: "Did these prisoners actually eat the adequate diet that Dr. Enright believes they did?" Let us examine the facts presented by Dr. Enright and see.

First of all it may be well to note that the great majority of the 7000 to 8000 German prisoners, amongst whom a total of 65 cases are said by Dr. Enright to have occurred, were captured either in September or early November, 1918. The monthly incidence of the disease is stated to have been as follows: January, 13 cases; February, 11 cases; March, 12 cases; April, 14 cases; May, 4 cases; June, 2 cases; July, 7 cases. Certain details with respect to 32 of the 65 cases are presented in a table, from which it appears that in 2 of these 32 cases the period of captivity before onset of the rash was 2¾ months; in 3 it was 3¾ months; in 13 it was 4 to 4¾ months, and in 14 it was 5 to 6¾ months. No information as to this interval is given with respect to the remaining 33 cases, with the exception of two German East African cases, who are stated to have been in Maadi Camp, Cairo, for 13 months prior to the onset of the rash. In the absence of any statement of any shorter period it would seem fair to assume that the shortest period of captivity before the onset of the rash was that given in his table—namely, 2¾ months. This is important, and should be kept in mind in relation to the points next to be considered.

On the theory of "dietary deficiency" there must, of course, be some period of deprivation before the clinical onset of the disease. As to the duration of this period the available knowledge is unfortunately very meagre. In the experimental cases in Mississippi convicts[1] mild subjective symptoms were definitely recognisable before the end of the second month, but the rash did not begin to appear until the close of the fifth month. This experience, however, is probably not altogether typical, for certain more recent observations by the writer, made in association with W. F. Tanner (unpublished), make it highly probable, if not certain, that this period may be as short as three months. Under these circumstances it becomes evident that the diet to be studied in relation to the cases of pellagra amongst the German prisoners is that which they ate after, not that before capture. When we attempt to do this we find that Dr. Enright gives us no account of the diet *actually eaten* by the pellagrins during the period subsequent to their capture and prior to the onset of the pellagrous rash. He does, indeed, give an account of the diet of the pellagrins before capture, but the "diet after capture" is simply that with which the prisoners in camp and hospital were presumably *furnished*, not what those who developed pellagra had *consumed*. Dr. Enright evidently assumes that the pellagrins ate the diet as furnished. In connexion with a point of such crucial importance, however, this assumption is not permissible, as general experience with the vagaries of racial and individual taste in relation to foods, methods of preparation, seasoning, &c., and the literature of scurvy and beri-beri impressively teach. Interestingly enough, however, Dr. Enright himself, quite unconsciously, presents evidence that strikingly illustrates the danger of fallacy involved in the assumption under consideration. He states (p. 999) that "two [of the patients] had had symptoms of scurvy before the rash [of pellagra] appeared." Now, if Dr. Enright's assumption is allowed in relation to pellagra, it must, of course, be allowed in relation to scurvy; it would thus follow that a "food deficiency" can no more explain the origin of scurvy than it can, according to Dr. Enright, explain the origin of pellagra in these men, and consequently the "food-deficiency" theory of scurvy must be considered as "exploded" equally with that of pellagra. Far from being "exploded," however, the food-deficiency theory of scurvy was never more solidly established than at present. It follows, therefore, that the diets allowed the German prisoners were (1) not "ample both in quantity and quality for any possible requirements"; or (2) not distributed as prescribed; or (3) not eaten as furnished them.

Since the number of cases of scurvy and of those of pellagra were relatively very few, it is fairly certain that the diet allowed was adequate so that such faults as developed were probably the result either of improper distribution or of individual eccentricities of taste or, perhaps, of both. In this connexion it may be recalled that prior to capture these German prisoners are said to have lived on "the fat of the land," so that it seems not at all improbable that at least some of them did not find the prison camp diet furnished them after capture physiologically adequate, though it may have been altogether to their liking, leading such either to reduce their normal total intake or to reject certain, to them, objectionable (because of character, flavour, seasoning, mode of preparation, &c.) articles. That a "food deficiency," leading to such condition or conditions as scurvy, war œdema, beri-beri, or pellagra, should thus arise is no more than might be expected, particularly in such as might at the same time be suffering from a depressing illness or mental aberration.

From the foregoing considerations it is evident that Dr. Enright's conclusion that the food-deficiency theory of pellagra is exploded is not well founded, and it follows, further, that the "toxin hypothesis" which Dr. A. D. Bigland[2] felt it necessary to advance in explanation, seemingly, of Dr. Enright's cases, would appear to be superfluous. In this connexion brief reference may perhaps be made to Dr. Viswalingam's paper[3] mentioned in the editorial on "Pellagra and Diet" in THE LANCET of May 8th (p. 1019). It appears that from his observations Viswalingam was "led to conclude that faulty diet in itself cannot cause 'pellagra,' and that there is a superadded infection." For, he argues, "if diet should be the sole factor, then the affected individual should improve, and there should be no recurrence when he is removed to a hospital and placed on a liberal diet, &c." "But," he goes on, "this is not so, as shown by cases that were kept in hospital for considerable periods and in which the disease, far from showing any improvement, advanced and the cutaneous lesions and gastro-intestinal disturbances were seen to recur at each succeeding season." One might accept this reasoning as perhaps conclusive if (1) the "liberal diet" is a biologically complete and adequate one, and, more important still, if (2) being "placed on" such a diet and actually

[1] Goldberger and Wheeler: U.S. Public Health Reports, Nov. 12th, 1915, and U.S. Hygienic Laboratory Bull., No. 120, February, 1920.

[2] THE LANCET, May 1st, 1920, p. 953.

[3] Journ. Trop. Med. and Hyg., Feb. 19th, 1920, p. 46.

consuming it could be assumed to be synonymous. That this assumption can be allowed only as a broad general proposition and that it may fail in individual instances has already been sufficiently indicated in connexion with the essentially identical assumption by Dr. Enright. In the light of the results of large-scale experiments designed to test the preventability of pellagra by means of an appropriate diet,[4] I may, perhaps, be permitted the suggestion that Dr. Viswalingam's unsatisfactory results may be accounted for on the ground either that this "liberal" diet was not really an adequate one, or, more probably, that the patients did not *eat* it. They may not have consumed this diet either because it was not given or because the patient refused some parts (poor nursing), or, finally, because he was dealing with complicated cases (evidences of dysentery, ankylostomiasis, malaria, and scurvy were present in at least 60 per cent. of his cases), or cases so far advanced that recovery was impossible. In this connexion it may be pointed out that the value and the significance of the results of the therapeutic test of diet is much inferior or, more properly, must be differently gauged from that of the preventive test. In evaluating the significance of the results of the former allowance must be made (exclusive of complications) for the varying degrees of severity and extent of the existing damage from the disease, so that recovery in the majority of (severe) cases is all that can, perhaps, be reasonably expected; in prevention, however, assuming proper control of the diet and of the pellagrin, practically complete eradication may with confidence be expected.

It follows from the foregoing that Dr. Viswalingam's hypothesis of a "superadded infection," like Dr. Bigland's "toxin hypothesis," has been invoked without substantial grounds, and like the latter must be regarded as superfluous.

I am, Sir, yours faithfully,

JAS. GOLDBERGER,
Surgeon, U.S. Public Health Service.

Washington, June 5th, 1920.

CARRIAGE OF MALARIA BY HIBERNATING MOSQUITOES.

To the Editor of THE LANCET.

SIR,—I have been reading Colonel S. P. James's most interesting book on "Malaria at Home and Abroad," which has just been published, and I should like to correct an error which appears on p. 14. He says that in the Balkans I showed that 40 days were required for the malaria parasite to attain maturity in the mosquito at a temperature of 62° F. I conducted a number of experiments with mosquitoes and malaria, but in none did I find such a long period of development, except in cases where the latter was intentionally arrested by exposing the mosquitoes to hibernating conditions. Large numbers of mosquitoes were dissected from Lehanah village, where there was a high malaria rate amongst the children and where the prevalent mosquito was *Anopheles superpictus*. These dissections were carried on through the summer and winter of 1918–19, and an interesting result was that partially developed oöcysts were found in mosquitoes all through the winter. The oöcysts appeared to be normal, and the question arose as to whether it would be possible for such oöcysts to continue their arrested development when temperature conditions became more favourable.

In the Macedonian village the anopheles pass the winter most usually in the barns or cow-houses below the living-rooms of the natives. In these the temperature is considerably higher than in the empty barns, where mosquitoes are more rarely found. During the winter the mosquitoes are constantly feeding on the animals. Experiments were instituted, and it was found that in mosquitoes which had been fed on malaria cases and then incubated for a week the development of the oöcyst could be completely stopped by exposure to a temperature corresponding to the winter hibernation temperature of the mosquitoes. After three weeks' artificial hibernation the oöcysts continued their development when the mosquitoes were again incubated. It is thus quite possible, if not probable, that the oöcysts which I saw in the hibernating mosquitoes collected in the village, and which resembled in every way those seen in the experiment, would be capable of completing their development in the early part of the year when the temperature became sufficiently raised.

The experiments I carried out seem to prove that the malarial parasite can be carried over the winter by the hibernating mosquitoes. Exposure of infected mosquitoes with partially developed oöcysts to a low temperature in the ice-chest for 12 hours did not produce degeneration of the oöcysts, whereas a longer exposure did do so. It would seem that in nature a temporary exposure to a very low temperature on an exceptionally cold night would not prevent the subsequent development. I think it is possible that Colonel James has obtained the figure of 40 days from some of these hibernation experiments. I call attention to the carriage of malaria by hibernating mosquitoes because of its importance in antimalaria work, for it emphasises again the advisability of destroying the hibernating females during the winter. My experiments will be fully described in a paper which will be published later.

I am, Sir, yours faithfully,

Wellcome Bureau of Scientific Research, C. M. WENYON.
Endsleigh-gardens, Gordon-square, N.W., June 23rd, 1920.

VARIOLA, VARICELLA, AND ALASTRIM.

To the Editor of THE LANCET.

SIR,—In the annotation in your issue of May 29th entitled Anomalous Cases of Small-pox, a list of characteristics is given which are said to differentiate the disease called "alastrim" from varicella on the one hand and from variola on the other. It is not stated where or when the observations which must underlie these formal distinctions were made, or on what authority the claim that they serve to differentiate alastrim from varicella and variola is based. To enter upon a detailed criticism of each feature in the list would take up too much space, but considering the supreme importance of the accurate differentiation of the small-pox rash from other rashes of similar type, it seems to me to be remarkable that the value in differentiation of observations of the distribution of the rash is not even suggested. Is it to be assumed from this omission that the distribution of the rash in alastrim cannot be distinguished from the distribution of the rash in varicella or in variola? Or is this factor in diagnosis considered to be of minor importance in comparison with those given in the list? In either case it is desirable that the omission should be rectified and that any observer who has had the advantage of opportunities of comparing alastrim with varicella on the one hand and with variola on the other should set down the results, whether positive or negative, of his observations. Dr. S. Monckton Copeman in the last sentence of his letter in your issue of June 5th says: "In both outbreaks the symptoms and general course of the disease more nearly resembled those of alastrim than of typical small-pox," but he makes no reference to the existence of a distribution sign as a factor in diagnosis, and although I had the advantage of hearing the interesting paper which he read before the Epidemiological Section of the Royal Society of Medicine, I failed to appreciate that he had observed any differences in the features of the distribution between the cases which he cited and the cases of true variola which were associated with his cases in the Norfolk and Suffolk epidemic.

If I seem to lay undue emphasis upon this factor in diagnosis my excuse is that in the London Receiving Station and in this hospital, following the teaching of my predecessor, the late Dr. T. F. Ricketts, we have always regarded the features of distribution as of paramount and really overwhelming importance in the examination of suspected rashes of focal type. It may therefore be understood that a list of tests in which this factor finds no place must fail to inspire confidence in anyone who has appreciated Ricketts's teaching or has personal know-

[4] Goldberger, Waring, and Willett: U.S. Public Health Reports, 1915, vol. xxx., p. 3117, and unpublished data.

ledge of the results which are obtained by the use of his method of differentiating the focal rash of small-pox from other rashes of similar type. In fact, if the claim that the conditions as set out in the list serve to differentiate alastrim from variola and from varicella is sound, there is no doubt that among the 11,000 patients admitted to the London Small-pox Hospital during the last 20 years there were many cases of alastrim and of varicella indiscriminately mingled with the cases of true variola. Under such conditions it is remarkable that during this period second attacks or relapse of disease or the intercurrent appearance of a focal rash (accidents of this nature might appear under any of these headings in the hospital records) have never been recorded. Vaccination has been used and is now used in a small proportion of difficult cases as a crucial test in diagnosis, but since only a very small proportion of the cases sent into hospital were subjected to vaccination for this purpose at the receiving station, and since it is claimed that vaccination confers an immunity of only limited duration to alastrim, the complete absence of secondary rashes of the focal type seems to require explanation.

Unfortunately I have had only one opportunity of examining a case in which the diagnosis of alastrim was suggested, and in regard to it I can only say that all the important signs of small-pox were present when the case first came under my observation. In my experience the full development of these signs may in some cases of genuine small-pox require five or even six days, counting from the appearance of the first lesions. The outbreak of epidemic small-pox is so frequently accompanied by the appearance of diseases similar in type of eruption but yet differing in a nondescript sort of way from true variola. It was so in 1902 when Cambridge was attacked. Again, a few years later a discussion was raised concerning "amaas" and its relation to small-pox in South Africa. Now we have alastrim. But no one has offered to explain why these nondescript diseases have been in all these instances associated and not infrequently in series with cases of typical and therefore unmistakable variola. Small-pox is a protean disease. At the present time the practical work of differentiating the focal rash of small-pox from other similar conditions must depend on clinical observation. Until the time arrives when an advance in bacteriological method may enable us to recognise the existence of varying types of the organism, it would seem to be the safe course for us in this country to continue to assume that variola and varicella are distinct diseases which breed true and differ in their clinical characteristics, that vaccinia is a relative of variola, behaves as such, and under certain well-defined conditions is a crucial test for the presence of small-pox. We may thus avoid on the one side the fallacy of the new disease or of the new benign type which is so prone to revert to the original savage, and on the other the absurdity of the suggestion that varicella should be isolated.—I am, Sir, yours faithfully,

A. F. CAMERON,
Medical Superintendent, River Hospitals and Ambulance Service, Metropolitan Asylums Board.
Dartford, Kent, June 26th, 1920.

THE ASSESSMENT OF HAND INJURIES.

To the Editor of THE LANCET.

SIR,—I am much interested in Mr. J. J. Scanlan's article on this subject in your issue of June 26th. Speaking only from a year's experience as chairman of a Pensions Board, I consider his suggestion of a diagram of the pensioner's hand excellent. I am inclined to think that too much time is at present spent in the minute description of scars, frequently to the exclusion of more important facts. It is, however, surprising how easily glaring errors in description may arise during the stress of actual examination. The differentiation of the thumb causes difficulties in the description of the hand to be greater than those of the foot, although dorsiflexion at the ankle provides pitfalls. It is easy in dictating a description of a hand injury to subconsciously associate the first metacarpal with the first finger, and a momentary loss of concentration of attention, due, perhaps, to an adjacent board's struggles with a deaf pensioner, may even lead to the substitution of the word left for right, with disastrous results to the description.

The subject on which I should have liked a fuller expression of opinion is the proportional disability of the loss of the hand compared with amputations higher up the limb. Speaking again from my limited experience, amputation of a hand or complete loss of use is a very serious disability, and in my opinion a lesser assessment on the usual scale compared with amputations higher up is only justified if the man can be fitted with a useful appliance. A practical detail in the elucidation of the utility of the hand is that every pensioner should undress himself in the examiner's presence. Although when done as a routine it apparently leads to waste of valuable time, it is really of great importance, as he will often unconsciously demonstrate the presence of more usefulness in the hand than is apparent at the subsequent formal examination.

I have been disappointed hitherto with the types of artificial arms I have come across. It is true that some are marvels of ingenuity; the pensioner newly provided with such an arm will give himself a twist, the mechanism clicks, and he shows with evident pride how he can pick up a match from the table. But after a time the tendency seems to be to only wear the arm on State occasions. A much more useful contrivance seems to be that of a forearm piece into which the tools of a man's trade can be individually screwed.

But the point which I think has struck me most as regards disabilities in general in this age of specialisation is that so far as elderly men and adults are concerned it is of supreme importance to try to enable the pensioner to follow his pre-war occupation rather than to advise him to learn a new trade.

I am, Sir, yours faithfully,

FRANCIS HEATHERLEY, M.B., B.S., F.R.C.S.
Ashville, Audenshaw, Manchester, June 27th, 1920.

THE CLINICAL DIAGNOSIS OF DIPHTHERIA.

To the Editor of THE LANCET.

SIR,—I see from your issues of June 5th and 12th that my statements *re* the above have not been allowed to pass unchallenged, nor is it desirable that they should, for the subject requires critical investigation in order, if possible, to arrive at the truth. I am grateful to you and to your correspondents for their criticisms, and will reply to the various points seriatim.

(1) In reply to Dr. A. K. Gordon, I do not for one moment suggest that ocular diagnosis should be used "as an alternative" to bacteriological investigation. As a matter of fact, a bacteriological examination has been made in every case of "diphtheria" under my care at the fever hospital. This ought to be done in every case of ulcerative or membranous sore-throat. I maintain, however, that naked-eye diagnosis, *if reliable*, is much more important than the bacteriological, and I have always given my diagnosis from the naked-eye appearance, and have only in a few cases prescribed any antitoxin in "diphtheria" cases that did not show what I considered were the characteristic appearances of the disease; and then only as a possible preventive. (*a*) I have not been impressed with the difficulty mentioned by Dr. Gordon under this paragraph. How does Dr. Gordon diagnose scarlet fever in the absence of the rash? If the typical rash and sore-throat are present where is the difficulty? (*b*) How does the naked-eye appearance differ as it affects (1) adults, (2) children? I have failed to observe any difference, and shall be interested to learn what has been observed elsewhere. In not a single case of "diphtheria" where I made the diagnosis of tonsillitis did I succeed in finding the Klebs-Löffler bacilli, even after 24 hours' incubation. Is not the diphtheria germ occasionally found in the throat not only of healthy nurses but also in healthy individuals outside hospital? (*c*) So far as I am aware, there have been only two cases of scarlet fever sent into hospital as "diphtheria." It is clear, therefore, that in

this area scarlet fever is not "*the* disease in which the differential diagnosis is most important"; at any rate, it is not the one in which mistakes have most frequently occurred; whereas in regard to follicular tonsillitis and influenza mistakes have been common. Neither is it my experience that the co-existence of scarlet fever and diphtheria is "commonly seen" as stated under (*a*). In a few cases of scarlet fever the throat looked "suspicious," and I prepared cultures; in each case the result was negative.

(2) "A Veteran" asks if my method of diagnosis is not "too good to be true." The answer to this is that for over three years it has been true.

(3) I am particularly obliged for the remarks in your leading article on p. 1276, and agree with many of them. You say there, "but cases are surely not uncommon in which a single patch is present in the tonsil." In tonsillitis, I think if practitioners will examine *the whole* of the tonsillar area with care they will find the single patch extremely uncommon. With many cases of diphtheria there is some tonsillitis, but this is quite distinct from "follicular tonsillitis," and in the latter disease I have never seen a single patch since I began to examine the throat critically, and I have on several occasions seen three or four patches after being informed by other observers that there was only one. I have heard several medical men say they "think" they have seen such or such an appearance. May I draw the attention of my medical brethren to the fact that my statements are based on graphic records, made at the bedside of the patient, so that there has been no need to "think" whether the patch was single or multiple.

I should like to ask Dr. Gordon to be good enough to state what he considers the characteristic appearance of diphtheria (of the fauces); or if he always has to wait for the report of the bacteriologist. Is the report of the bacteriologist always reliable? I think not. Only a short time ago I sent a specimen to one of the leading professional bacteriologists in the kingdom and was informed that diphtheria bacilli were present; then, a few days later, I received another note stating that the bacilli present were not the true Klebs-Löffler bacilli, though indistinguishable from them as seen under the microscope. It is also well known that a negative result is not infrequently obtained on first examination, and afterwards a positive one in the same patient—i.e., at first the bacteriological diagnosis is *wrong*, and if followed as a guide to treatment would be likely to lead to the disastrous results which Dr. Gordon refers to as likely to arise from depending on the eye alone. I may add that the published drawings illustrative of my paper in THE LANCET are only a small selection of about 200; all the rest, however, illustrate the same points and might equally well have been chosen. In conclusion, allow me to express the hope that this discussion will ultimately lead to a more satisfactory diagnosis of infectious diseases of the fauces. The description that I have given relates to what has been seen at the Wrexham Fever Hospital and in my own private and consulting practice; it is for others to state what is seen elsewhere.

I am, Sir, yours faithfully,

Wrexham, June 19th, 1920. H. DRINKWATER.

THE EPIDEMIOLOGY OF PHTHISIS.

To the Editor of THE LANCET.

SIR,—In the introduction to Dr. John Brownlee's recent research publication on the Epidemiology of Phthisis, the Medical Research Council say that the division of the disease into types is "a challenge to the bacteriologist and clinician alike to coöperate in closer analysis of the different infections and of the responses to them made by the body at various ages and in particular environments." "These two (or perhaps three) types either correspond with separate types of infecting bacillus, as Dr. Brownlee inclines to believe, or they mark different types of physiological response made by the human body to the infection at different ages," and I would add to the latter, "with definite racial or family characteristics."

I would like to present the case from another aspect, as a clinician, but in no way desire to differ from the most astute and painstaking observations by which Dr. Brownlee has shown us that phthisis must be definitely divided into types.

As a clinician I have unreservedly accepted Dr. Brownlee's young adults (Y.A.) and middle-age (M.A.) types. After reading Dr. Brownlee's first paper I divided into groups 31 deaths from the insured patients whose duration of illness was accurately known and was specially investigated for this purpose. These groups were three: The first, those dying within one year of first symptom; second group, those in whom known symptoms had existed over two years; and third, the intermediate and indeterminate group dying between one and two years from the onset of disease. None of the 14 constituting the first group dying within the year were found to be between the ages of 22 and 43, 7 (or half) were between 17 and 22 years of age, and the remaining 7 were all over the age of 43 and would presumably come in Dr. Brownlee's old-age (O.A.) group. There were 9 cases in the chronic class with symptoms of over two years' duration; 8 of these died between the ages of 22 and 43, and would constitute Dr. Brownlee's middle-age (M.A.) type. The intermediate group of those dying between one and two years after the first onset of symptoms, 9 cases in all, were of all ages from 17 to 55.

Clinically the three types apparently exist, and they coördinate with the duration of the illness. Y.A. and O.A. are acute and M.A. is chronic, and the other deduction seems also correct, that the middle-aged type (M.A.) is subject to environmental conditions and is eminently curable. Y.A. and O.A. types are far more difficult propositions, but in all families believed to be subject to Y.A. type, susceptible persons were given prophylactic doses of tuberculin (P.T.O.), which so far has proved efficient in preventing any subsequent cases developing among them. This accords with Dr. Brownlee's observations that early milk infection protects from Y.A. type. These cases are too few to found any positive deductions on, but are very suggestive that, clinically, coördination exists between the age and the type of the disease, as suggested by Dr. Brownlee's paper.

Coming now to the cause of the type, I started out with the idea it was strainal, or caused by a special variety of tubercle bacillus, but have now come to the opinion it is a physiological age response accentuated by certain family or racial characteristics. The response of the human tissues to the tubercle bacillus is an age response all through, both in its active and in its immune periods, but acts quite differently in men and women. In early years the danger to woman is very great, but in her case it steadily diminishes with her increasing resistance as age progresses till, in Australia at any rate, it is almost non-existent among women between the ages of 45 to 50. In the male the danger to those attacked between 15 and 25 is not so great, but reaches its highest point between 45 and 50. Physiologically men and women are under very different conditions. A woman usually reaches her maximum strain before 30 and then steadily diminishes, but a man's maximum strain is not reached till after 40.

In regard to the proposition advanced, "How far has the elimination of the susceptible made for the improved urban conditions?" there are fewer susceptible families, I think, than is generally supposed. In 125,000 people investigated there were only five proved susceptible families, and I think this elimination of susceptibles in towns is due to greater marriage intermixture, raising the resistance to a higher level.

Considering possible causes of the decline of phthisis in recent years, I would add a sixth cause to Dr. Brownlee's five—namely, the increase of resistance resulting from intermarriage, as well as from the improved hygienic conditions that the intermixture of races has promoted. This cause affects the Y.A. type especially. Should this view prove correct, the position would be that Y.A. phthisis, being principally a racial and family disability, would be advantageously affected by movement of population. Whereas M.A. phthisis, being a hygienic and physical strain disease, would be principally affected by hygienic conditions of work and feeding. The industrial migration in Lancashire would thus account for the fall of Y.A. phthisis death-rate, which has occurred without affecting M.A. phthisis.

No consideration of causes of modern variation can be complete without taking into account the alteration in the type of foods used in large towns. The whole-foods of our ancestors, with their complete vitamines, have been largely replaced to-day by the manufactured foods, with their absence of vitamine. The food factor to-day is one of increasing importance, and there seems no doubt that both butter-fats and good fresh meats have certain unknown resistance-raising qualities which are not found in modern margarine and in the tinned and frozen meats so largely used by the working population.

To my mind Dr. Brownlee gives away his own case for strainal differentiation as against physiological and racial differentiation in the production of types of tubercle when, in the paragraph discussing the incidence of phthisis in Wales (p. 64), he writes :—

"In the district of Pembroke itself, that is the district South of Milford Haven, there is little phthisis. This absence of tuberculosis occurs in spite of the fact that the cattle of South Pembroke are largely Short Horn, *a breed which is very subject to tuberculosis*, while the cattle North of the Prescilly Mountains are of the long-horned black Welsh breed, which is seldom affected with that disease."

Surely if the breed in cattle varies the incidence without presupposing a special strain of bacillus the same should hold good in man. But however this may be, and however we may differ as regards the interpretation of the facts, the fact remains that Dr. Brownlee has conclusively shown that in future phthisis must be divided into three types for investigations if we are to attain to any results, and that his description of the types and their associated relations are clinically correct. Clinically the middle-age type (M.A.) is essentially environmental and certainly can be dealt with, given control of that environment. The question is one of individual resistance and is thus an eminently treatable proposition. At present we have not sufficient evidence to show that this is the case with the Y.A. type, which I regard as largely a question of family and race which will tend to die out with racial intermixture. As far as the British races are concerned the racial strains liable to Y.A. tubercle must be mainly those of Celtic origin, with whose temperamental proclivities we must all be acquainted. We must remember that early tubercle is essentially a nervous disease, or rather that a nervous condition manifestly tends to the loss of resistance which is so serious a factor in those thus threatened.

In considering the geological epidemiology, a necessary factor, clinically a cardinal factor, is the occurrence of lime in the drinking-water. I believe there are considerable grounds for stating that other things being equal people bred and resident in lime districts or those whose drinking-water is impregnated with lime are more resistant clinically to tuberculosis, and this is natural, as lime is Nature's method of combating the disease. I have recently had a remarkable confirmation of this view from Dr. E. A. Wilson, of Keighley, who writes :—

"Half my district is on clay, the other on agricultural limestone. Excluding urban areas, I see large numbers on the clay area and very few in the limestone area. In fact, in the limestone area, a branch dispensary had to be closed from lack of patients, and the few patients in that district do far better than in the clay area."

If these remarks promote discussion from the clinical side of the type problem of tuberculosis their object will have been attained. May I say, in conclusion, that every tuberculosis officer should read Dr. Brownlee's Part III., as it will be found an essential starting-point for all future thought on the subject.

References.—1. An Investigation into Epidemiology of Phthisis in Great Britain and Ireland, Part III., Medical Research, by John Brownlee, M.D., Director of Statistics, Medical Research Committee, H.M. Stationery Office, Kingsway, &c. 2. Report of Parliamentary Committee on Tuberculosis; Death and Invalidity in the Common wealth, December, 1916.

I am, Sir, yours faithfully,

HENRY A. ELLIS,

June 14th, 1920. Ex-Tuberculosis Officer, Middlesbrough.

CONGENITAL STENOSIS OF THE AORTA.

To the Editor of THE LANCET.

SIR,—We have been interested in Dr. R. O. Moon's case of congenital stenosis of the aorta described in THE LANCET of June 19th. A case resembling it in some respects was recently under our observation, and the variations in the electrocardiograms taken from it make it also worth recording.

The patient was a boy of 10 years, stunted in growth, and complaining of general debility. His mother reported that he showed "blueness of the face when bathing" and that he had not suffered any special illness. His apex beat was in the fifth interspace and was not particularly forcible. A pronounced systolic thrill was palpable over the aortic area. Cardiac dullness was slightly greater than normal at the base and normal at the apex. A systolic murmur was audible at the aortic, pulmonary, and mitral areas, having its point of maximum intensity in the second right intercostal space, and its only direction of conduction upwards towards the carotid. Radial tracing showed pulsus tardus. The physical signs and symptoms strongly suggested congenital stenosis of the aorta.

An electrocardiogram taken on Feb. 10th, 1920, showed the T-wave to be inverted in Leads II. and III., the P-wave was inverted in Lead III., and there was preponderance of the left ventricle. A second electrocardiogram taken on March 5th showed that the T-wave in Lead II. was no longer inverted, the line between R and P remaining practically straight. A third electrocardiogram was taken on April 9th, and showed the T-wave in Lead II. to be of normal outline. The other features of this electrocardiogram were unaltered and remained as in the first one. The patient was not under the influence of digitalis at the time these electrocardiograms were taken.

If inversion of the T-wave in Lead II. is invariably a sign of degeneration of cardiac muscle and therefore of grave prognostic import, as it is held usually to be, then the return of such T-wave to its normal outline ought not to be expected in the course of a few weeks. In this relation the post-mortem finding of normal heart muscle in Dr. Moon's case is very significant. Is it more than a coincidence that these two cases, which exhibit inverted T-waves in Lead II. are cases of congenital aortic stenosis and may such a cardiographic feature be considered characteristic of this form of congenital heart disease? We have not observed it in any other type of congenital heart disease, but we should like to learn the experiences of others in this respect.

We are, Sir, yours faithfully,

MURRAY BLIGH,
Honorary Physician, Northern Hospital, Liverpool.
I. HARRIS,
Honorary Physician Cardiographic Department,
June 26th, 1920. Northern Hospital, Liverpool.

RACE PATHOLOGY.

To the Editor of THE LANCET.

SIR,—Dr. G. Rome Hall's contribution to race pathology, which appears in your issue of June 5th, is of practical importance. Until recently, when Jewish learned societies took steps to collect statistical facts concerning the Jewish race, most of the references and statistics on comparative racial pathology were obtained from foreign sources, as the sickness and mortality returns of the Registrar-General made no reference to religious or racial factors. Although Dr. Hall has only been able to deal with the Russian type of Jew from the age of 18 to 42, nevertheless his article should lead to much valuable discussion and further study on a subject which is both fascinating and of practical utility.

No doubt it was impossible for Dr. Hall, in the amount of space at his disposal, to go more fully into his subject. Had he been able to do so, his fuller views would have been welcomed on certain defects and diseases which medical literature has shown to be very rare or very common among Jews. The reference is to such conditions as alcoholism, diabetes, gout, myopia, and glaucoma, nerve diseases, surgical tuberculosis, and diseases of the rectum, among other things.

Experience in medical practice, correlated with the experience of others, as gathered from existing literature by those who have had opportunities of studying Jewish morbidity, agrees in many respects with Dr. Hall's conclusions on the racial incidence of disease among Jews. Lack of space prevents entering into many of the causes, apart from what Dr. Hall has already mentioned, that would probably explain the morbid conditions he has outlined in his useful article. There will be dissent, however, from Dr. Hall in certain of his findings. True epilepsy we seldom encounter among Jewish patients, and both Charcot and Worms, from their experiences among hospital patients, point to the rarity of epilepsy in Jews as compared with non-Jews. This rarity may be attributed to the absence of the predisposing factors of syphilis and alcoholism in Jewish parents. The diet of the Russian Jew is excessive in starch, because of the habit cultivated from their Slav neighbours of eating an excessive amount of bread, but Dr. Hall's remarks that the Russian Jewish dietary is deficient in proteins and contained fats which were vitamine-free will be challenged. Reports of investigators in vitamines—e.g., Mellanby,[1] and personal experience in Jewish dietaries, disagree with Dr. Hall's observations.

[1] THE LANCET, April 17th, 1920.

Though it must be confessed that venereal disease is on the increase among Jews, yet statistics everywhere point to the fact that organic nervous diseases and the dermatoses secondary to syphilis are much less frequent in the Jewish race than among the general population. It might also be mentioned that circumcision in the Jew does away with the evils that result from phimosis and paraphimosis, lessening also the likelihood to infection by syphilis (Breitenstein's statistics prove that syphilis is five times as frequent in the uncircumcised—the immunity is said to result from the toughening of the exposed glans), and accounts for the fact that not a single case of carcinoma of the penis in a Jew has yet been recorded.

I am, Sir, yours faithfully,

SAMUEL SAMUEL, M.D., M.R.C.S.,
Late Captain, R.A.M.C., Honorary Medical Staff,
June 12th, 1920. Leeds Jewish Hospital.

ANGLO-AMERICAN LIBRARY FOR CENTRAL EUROPE.

To the Editor of THE LANCET.

SIR,—Would not the above undertaking, noticed by you a while back, be now more useful if it functioned merely as an exchange of scientific and other literature between the countries concerned? The immediate reason is the unsatisfactory working of existing agencies. In my own case H.M. Stationery Office is now very irregular in its deliveries, while a leading book importer has for months not been able to fulfil an order for the whole war-time issue of a Vienna medical magazine, in spite of the offer of a fair price for the same instead of the exchange rate. The remote reasons are the (mostly silent) change in informed persons' opinions as to the origin and conduct of the war, the result of the partial removal of the censorship—a change expressed by Mr. Chesterton in the epigram that all that thought itself on a pedestal now finds itself up a tree—and the even greater alteration in British opinion concerning Freud's work; it is not so long since some medical journals here—not, I think, THE LANCET—allowed the late Dr. Mercier to write in their columns of psycho-analysis as fraud and pornography.

I am, Sir, yours faithfully,

June 26th, 1920. CADUCEUS.

DR. JOHNSON AND SECOND SIGHT.

To the Editor of THE LANCET.

SIR,—In the *Cornhill Magazine* for the current month Mr. Edward Clodd discourses in his usual pleasant fashion upon the subject of Dr. Johnson and the phenomenon generally known as "second sight," though it ought to be called, as Mr. Clodd points out, "two sights"—i.e., the one of the world of sense and the other of the world of spirit. Belief in this double sight is as old as human history, and in my opinion cannot in any general way be ascribed to diseased mentality. Even the wisest of us understand but little of the workings of the mind, and the belief that there is a spiritual world to appreciate which the eye may be sometimes opened is nearly universal, and not at all confined to any over-imaginative or readily credulous section of the people. "Second sight" in common parlance means the power possessed by some persons of foretelling the approaching death of others by seeing them shrouded to a greater or less extent, according as their death is imminent or the reverse. Mr. Clodd says "One of the earliest references in this matter is given in the 'Polychronicon' of Ranulf Higden." I presume that he means one of the earliest as regards the belief in the Scottish Isles, for, of course, the earliest and far best known instance on record is the vision of Theoclymenus in the Odyssey, Bk. XX., of the approaching death of the suitors. Other portents of death seen by the second sighted and quoted by Mr. Clodd include visions of black dogs, funerals, and corpse candles. These matters Andrew Lang explained by assuming that such manifestations are merely a kind of aphasia from which spirits suffer owing to their not possessing any matter through which they can make their wishes or ideas manifest. For instance, in the story entitled "In Castle Perilous," Lang makes a communicative spectre explain that the Puddifant ghost "has been trying for generations to inform his descendants that the drainage of the castle is execrable. Yet he never can come nearer what he means than taking the form of a shadowy hearse-and-four and driving round and round Castle Puddifant at midnight."

To return to Dr. Johnson, he was willing to believe in second sight, but does not seem to have found altogether convincing evidence, although he told Boswell in a discussion on the matter that instances of fulfilment of such omens "have happened so often that mankind have agreed to think them not fortuitous." As with so many other matters, the worst that can be said against second sight in the restricted meaning of premonition of death is, we think, "not proven," while if there were no belief in supersensual things, music, poetry, and painting would scarcely exist. Handel and Blake with their "multitude of angels," Ruskin and Newman with their vision of natural phenomena as the fringes of God's garment, Traherne with his poems on childhood, are all examples of this; while in other literature, to take only one example, there is the intensely dramatic scene in the Second Book of Kings when the King of Syria sent an army to arrest Elisha and "the Lord opened the eyes of the young man; and he saw, and behold, the mountain was full of horses and chariots of fire round about Elisha."—I am, Sir, yours faithfully,

June 22nd, 1920. M.D.

THE STANDARDISATION OF COLOUR PERCEPTIONS.—This correspondence is closed. A further letter, received by us from Mr. J. H. Parsons, has not been inserted as Mr. Parsons has already announced his intention of dealing with Dr. Edridge-Green's position elsewhere in detail.

Medical News.

UNIVERSITY OF CAMBRIDGE.—**At examinations** for medical and surgical degree held in Easter term the following candidates were successful:—

THIRD EXAMINATION.

Part I., Surgery and Midwifery.—L. W. Batten, Sidney Sussex; W. L. Berry, Caius; P. F. Bishop, Clare; H. J. Bower and J. H. Burn, Emmanuel; W. F. Castle, Trinity; P. D. H. Chapman, Sidney Sussex; V. M. Coates and H. E. Creswell, Caius; H. T. Cubbon, St. John's; L. Cunningham, Downing; W. D. Doherty, King's; C. C. R. Downing, Pembroke; N. D. Dunscombe, Downing; J. Fairbrother, Caius; V. N. Fenton, Queen's; D. G. Garnett, Pembroke; C. I. C. Gill, King's; A. C. V. Gosset, C. Grantham-Hill, and E. A. H. Grylls, Caius; G. Habgood, Clare; A. C. Halliwell, Caius; F. R. G. Heif, Sidney Sussex; J. M. Higginton, St. John's; H. W. Leatham, Trinity; A. A. Lees, Emmanuel; E. E. Llewellyn, Christ's; F. S. Maclean, Jesus; E. C. Malden and L. B. Maxwell, Caius; J. W. McK. Nicholl, Queen's; C. C. Okell, St. John's; C. L. Pasricha, Caius; R. Y. Paton, Trinity; K. Playfair, Caius; H. J. A. Pollard, Clare; J. L. Potts, Caius; W. Raffle, St. John's; W. F. Rhodes, H. Selwyn; H. A. Richards, Clare; P. Richardson, Christ's; A. P. Saint, Downing; F. N. Sidebotham, Clare; F. V. Squires and H. N. Stafford, Caius; S. D. Sturton, Emmanuel; M. B. R. Swann, Caius; W. S. Sykes, Emmanuel; K. H. Tallerman, Caius; W. S. R. Thomas, Queen's; G. S. Trower, King's; W. G. Verniquet, Emmanuel; G. H. Ward and G. C. Wells-Cole, Caius; R. C. P. Whitcombe, King's; and J. M. McC. Wright, Pembroke.

Part II., Medicine, Pathology, and Pharmacology.—W. E. H. Banks, Clare; H. Barbash, St. John's; L. W. Batten, Sidney Sussex; W. L. Berry, Caius; J. H. Burn, Emmanuel; W. F. Castle, Trinity; M. T. Clegg, Jesus; C. B. Cohen, Trinity; C. C. R. Downing, Pembroke; H. S. Evans, Trinity; L. P. Garrod, King's; W. N. Goldschmidt, Pembroke; E. F. S. Gordon, St. John's; A. C. Halliwell, Caius; F. R. G. Heif, Sidney Sussex; E. P. Hicks, Trinity; J. M. Higginton, St. John's; R. Hilton, Corpus Christi; R. Lester Williams, St. John's; P. T. Liang, Caius; R. K. Merson, Emmanuel; F. Moor, Trinity; C. C. Okell, St. John's; F. P. N. Parsons, Pembroke; R. A. W. Procter, Clare; W. F. Rhodes, H. Selwyn; M. K. Robertson, Trinity; C. J. Scholtz, Emmanuel; C. G. Schurr and R. S. Scott, Caius; W. J. D. Smyth, Pembroke; F. G. Spear, Christ's; C. Suffern, Emmanuel; M. B. R. Swann, Caius; W. S. R. Thomas, Queen's, G. S. Trower, King's; E. W. Todd, Trinity; E. B. Verney, Downing; W. G. Verniquet, Emmanuel; T. T. B. Watson, Christ's; J. M. McC. Wright, Pembroke; and H. B. Yates, Downing.

UNIVERSITY OF OXFORD.—**At examinations held** recently the following candidates were successful:—

SECOND EXAMINATION FOR DEGREE OF BACHELOR OF MEDICINE.

Materia Medica and Pharmacology.—C. W. C. Bain, Christ Church; J. L. Cox, Brasenose; R. S. Creed, Trinity; D. G. T. K.

Cross, St. John's; D. G. Davies, Magdalen; C. F. T. East, New; S. Hartley and H. C. Hill, Hertford; B. W. Williams, Exeter; and W. A. Young, Jesus.

Pathology.—D. G. T. K. Cross, St. John's; I. Harris, Jesus; S. Hartley, Hertford; T. S. Nelson, University; and W. F. Skaife, Trinity.

Forensic Medicine and Public Health.—C. K. J. Hamilton, Lincoln; W. E. Hayes, New; J. T. S. Hoey, Jesus; J. G. Johnstone, St. John's; E. G. M. T. Liddell, Trinity; T. S. Nelson, University; H. L. Rayner, Balliol; G. H. Rossdale, Merton; W. F. Skaife, Trinity; and W. S. Tunbridge, Lincoln.

Medicine, Surgery, and Midwifery.—H. E. A. Boldero, Trinity; H. G. Burford, Christ Church; and T. S. Nelson, University.

MASTER OF SURGERY.

W. H. Ogilvie, New; and N. A. Sprott, Christ Church.

DIPLOMA IN PUBLIC HEALTH.

Part I.—T. C. Backhouse, M. S. Baker, A. R. Balmain, L. W. Barlow, F. E. Bendix, C. K. Carroll, R. J. W. A. Cushing, S. C. Davidson, F. W. Kemp, C. Kingstone, T. J. Lloyd, H. R. Macintyre, J. S. Moore, M. Radford, W. C. Sawers, C. W. Sharpley, D. C. Suttie, and A. E. Woods.

Part II.—J. N. L. Blamey, A. R. Balmain, F. W. Hamilton, H. R. Macintyre, L. J. J. Orpen, W. C. Sawers, D. C. Suttie, C. H. Warner, and E. A. Woods.

UNIVERSITY OF MANCHESTER.—The following recommendations have been approved for the degree of Doctor of Medicine (by dissertation):

J. G. Bennett, R. B. Berry, Mary G. Cardwell, J. W. Crawshaw, Jacob Holker (Gold Medal), R. C. Hutchinson, E. A. Linnel, (commended), A. H. Macklin (commended), R. A. Needham and F. C. Ormerod (commended).

UNIVERSITY OF GLASGOW: COMMEMORATION DAY DEGREES.—On Thursday in last week the degree of Doctor of Laws was conferred by the University upon, among others, Dr. John Macintyre, Glasgow; Sir Robert W. Philip, Edinburgh; and Lieutenant-General Sir David Henderson, Director-General, League of Red Cross Societies.

ROYAL COLLEGE OF SURGEONS OF ENGLAND: A ROYAL FELLOW.—The Duke of Connaught, accompanied by Sir Malcolm Murray and Sir Edward Worthington, paid a visit to the Royal College of Surgeons on June 24th to receive the diploma of Honorary Fellow. His Royal Highness was received by the President (Sir George Makins), the Vice-Presidents (Sir Anthony A. Bowlby and Sir John Bland-Sutton), and the Secretary (Mr. S. Forrest Cowell) and conducted to the Council Room, where the members of Council were assembled, together with Sir John Goodwin, Director-General of Army Medical Services, and Lieutenant-General Sir George Macdonogh, Adjutant-General to the Forces. The President, in presenting the diploma, referred to the association of His Royal Highness with the medical profession as Colonel-in-Chief of the Royal Army Medical Corps, and mentioned that King Edward, when Prince of Wales, was the first to become an honorary Fellow of the College and that King George had also become an honorary Fellow when Prince of Wales. His Royal Highness expressed his pleasure at becoming an honorary Fellow and signed the roll. A visit was afterwards paid to the Museum, where the President and Professor Keith showed some of the specimens from the War Office collection of pathological specimens and other objects of interest.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.—The following candidates have passed the Final Dental Examination and have been granted the diploma of L.D.S., R.C.S. Edin.:—

Margaret Peterkin, Alexander Glen Thom, Ernest Purves Thomson, Thomas Archibald Hall, Johannes Vlok Basson, John Lawson Gibson, and Willem Frederik Pauw.

CENTRAL MIDWIVES BOARD.—A meeting of the Central Midwives Board was held at Queen Anne's Gate Buildings, Westminster, on June 23rd, with Sir Francis H. Champneys in the chair, when a letter was considered from the Carlisle District Nursing Association urging the desirability of holders of the C.M.B. certificate being required to practise midwifery for a period after their training. The Board decided to inform the Association that it appreciates the difficulties which arise from the fact that many midwives do not practise as such, and that it will take all opportunities which present themselves of improving the condition of things in this respect.—A letter was considered from the Ministry of Health enclosing a revised scale of fees which the Ministry proposes to prescribe for payments by local supervising authorities to doctors called in by midwives under Section 14 of the Midwives Act, 1918, and suggested alterations in Rule E. 20 to 23 bringing them more into conformity with Section 14 of the Midwives Act, 1918.—The question of a representation to the Ministry of Health with regard to the expediency of modifying the constitution of the Board was considered; the Board directed that a representation be made to the Minister of Health under Section 1 (1) of the Midwives Act, 1918, that it is expedient to modify the constitution of the Board.

LITERARY INTELLIGENCE.—Messrs. W. B. Saunders Company, Ltd., of London and Philadelphia, have just issued a new and well-printed list of publications amounting to 84 pages, with an index of authors and subjects and a résumé of new books on the back cover. The prices in the book are quoted in dollars, but an inset list is attached giving the prices in English money. A significant note is appended that "owing to the instability of conditions governing book manufacture the prices quoted are subject to change without notice."

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—The annual general meeting of this society will be held at the West London Hospital on Friday, July 9th, at 5 P.M., with Dr. Herbert Chambers, the President, in the chair. The annual report of the council will be presented, also financial statements from the treasurer and editorial secretary, and officers for 1920-21 will be elected. Members who have not already paid their subscriptions are requested to send them without delay to the acting honorary treasurer, Dr. Arthur Saunders, 37, Harley-street, London, W.1.

SOCIETY FOR THE STUDY OF INEBRIETY.—A meeting of this society will be held in the rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square, London, W., on July 13th, at 4 P.M., when Mr. Arthur Evans will open a discussion on "Alcohol and Alcoholism in Relation to Venereal Disease." Members and Associates may introduce visitors. Subscriptions for the session 1920-21 should be forwarded as soon as possible to the honorary treasurer, Mr. Arthur Evans, 28, Devonshire-place, London, W.1.

MEDICO-LEGAL SOCIETY.—The annual general meeting of this society will be held at 11, Chandos-street, London, W., on July 6th, at 8.30 P.M., when the officers for the ensuing year will be elected, and the report of the honorary secretaries, Mr. Ernest Goddard and Dr. Bernard H. Spilsbury, as well as that of the honorary treasurer, Mr. Walter Schroder, will be presented. At the conclusion of the meeting Dr. Josiah Oldfield will read a paper entitled, The Suicide Idea and Capital Punishment.

RESEARCH DEFENCE SOCIETY.—The annual general meeting of this society was held on June 3rd at 11, Chandos-street, London, W., when an address on Vitamines in their Relation to Health was given by Colonel R. J. McCarrison. The report of the committee states that several addresses, lantern lectures, and public debates have been arranged during the year, and that new editions of many pamphlets and leaflets have been required; a series of articles by members of the society has appeared in the *Daily Mail*. Dr. Andrew Balfour, Dr. Thomas Lewis, Professor W. M. Bayliss, and Dr. A. Drury have joined the committee of the society. The report of the honorary treasurer shows a satisfactory financial position, but in view of increasing expenditure and the desirability of extended activities, more members are needed.

SOCIÉTÉ DE THÉRAPEUTIQUE DE PARIS.—At a meeting of this society on May 12th Dr. R. Huerre read a paper on Ipecacuanhic Acid in Ipecacuanha and Deëmetised Ipecacuanha. His conclusions were as follows: (1) The total amount of ipecacuanhic acid contained in ipecacuanha powder was found in the officinal preparations of ipecacuanha; (2) the de-alkaloidisation of ipecacuanha in order to obtain a deëmetised preparation of ipecacuanha produced a quantitative and qualitative change in ipecacuanhic acid; preparations of deëmetised ipecacuanha contained ammoniacal salts. In a paper on the Treatment of Post-influenza Insomnia by Passiflora, Dr. H. Leclerc maintained that ordinary hypnotics, such as preparations of opium, chloral, and veronal, should be avoided, and should be replaced by antispasmodics, especially the passion-flower (*Passiflora incarnata* and *Passiflora cærulea*). The preparations of passion-flower most frequently used were the fluid extract and the tincture. Dr. Leclerc preferred the tincture, which he ordered in doses of 30-50 drops at bedtime.

ARTIFICIAL EYES FOR EX-SERVICE MEN.—Local War Pensions Committees will supply to ex-Service men who have suffered the loss of an eye on war service with artificial eyes, and the arrangements made by the Optical Appliances Depôt, Clifford's Inn, London, E.C.4, are such that no delay ought to be experienced. Applications should in the first instance be made to the Local War Pensions Committee. The depôt possesses an immense stock of artificial eyes, and an elaborate matching system enables requirements to be met at short notice. A special staff is engaged upon the different processes of alteration, re-polishing, and re-cutting, every conceivable colour and shape being classified and made available. In most cases the necessary directions have to be given by local surgeons or hospital authorities, to whom a selection of eyes is despatched from the depôt, but in exceptional cases arrangements are made for the man to visit the depôt.

THE King has granted permission to Mr. Lancelot Edward Barrington-Ward, F.R.C.S. Eng. & Edin., to wear the Insignia of the Fourth Class of the Order of St. Sava, conferred upon him by His Majesty the King of the Serbs, Croats, and Slovenes in recognition of the services which he rendered to the Serbian sick and wounded under the auspices of the Serbian Relief Fund during the late war.

OXFORD OPHTHALMOLOGICAL CONGRESS: ELEVENTH ANNUAL MEETING.—This congress will meet on July 15th and 16th. The proceedings of the meeting will take place in the Department of Human Anatomy in the University Museum, kindly lent for the purpose by Professor Arthur Thomson, and will consist of addresses, demonstrations, a scientific and a commercial museum. The Doyne Memorial lecturer for the year is Mr. F. R. Cross (Bristol), who will lecture on The Nerve Paths and Centres concerned with Sight. The congress will be opened by the Master, Mr. Sydney Stephenson, on July 15th, at 9.45 A.M. Mr. A. S. Percival (Newcastle-on-Tyne) will speak on Light Sense, with some practical deductions drawn from its consideration, and Dr. Van der Hœve (Leyden) on Eye Symptoms in Tuberose Sclerosis of the Brain. A discussion on Perimetric Methods will be opened by Dr. Luther C. Peter (Philadelphia), who will limit his remarks to the new methods of perimetry and the types of cases for which they are especially adapted. The following will take part in the discussion, which will be continued after luncheon: Dr. Van der Hœve, Mr. W. W. Sinclair, Dr. Marx, Dr. S. Holth (Christiania) Mr. E. H. E. Stack, Lieutenant-Colonel R. H. Elliot, Dr. A. Maitland Ramsay, Mr. N. C. Ridley, Lieutenant-Colonel H. Herbert, Dr. W. Hardin Sears (U.S.A.), and Mr. Percival J. Hay. On July 16th, at 10 A.M., Mr. Maurice Barton will read a paper on an Examination of the Eyes of Pit Ponies, particularly with Reference to Miners' Nystagmus, followed by Mr. A. Hugh Thompson, who will speak on Physiological and Glaucoma Cups, and Mr. Rayner D. Batten on Premonitory Symptoms of Glaucoma. The Doyne Memorial Lecture will then be delivered by Mr. Cross, after which Dr. Louis Sambon will speak on Ancient Eye Instruments. At 2.30 P.M. at the Eye Hospital demonstrations will be given by Lieutenant-Colonel H. Herbert, Dr. Holth, Mr. Ridley, Mr. Batten, Mr. Percival, and Lieutenant-Colonel Elliot. The scientific and commercial museums will be open in the Department of Human Anatomy from 9.30 A.M. to 5 P.M. on the 15th, and from 9.30 A.M. to 1.30 P.M. on the 16th. Members who purpose to be present are requested to send the attendance fee (1 guinea) to the honorary secretary, Mr. A. Bernard Cridland, at Salisbury House, Wolverhampton, at their earliest convenience, and at the same time to intimate whether they desire rooms reserved in Keble College, and whether they intend to be present at the annual dinner.

ROYAL VICTORIA HOSPITAL, BELFAST.—Some figures published in the Belfast papers of June 21st are indeed serious to contemplate in respect to the Royal Victoria Hospital, Belfast. At the end of last year there was a deficit of over £5000. Five months of the current year are gone and, up to May 31st last, the total expenditure rose to £24,406. The receipts for the period were £15,956, leaving a deficit of £8450. If to this their initial £5000 indebtedness was added, the hospital finances were on the wrong side by over £13,000. Three wards opened up just before the war to overtake the increased demands for admission, were costing approximately £12,000 per annum. In 1914, the maintenance of the hospital cost £17,500, while it was estimated that for the current year £55,000 would be required. The hospital was costing more money than ever for its upkeep, and new departments—whose maintenance was an increased charge—had been initiated as the direct result of the war, and, as the treasurer put it, the financial position of the hospital was, comparatively speaking, worse to-day that at any time during its long history. The middle classes, who so loyally supported the institution in the past, cannot now, with their enormously increased financial burdens, do so, and unless the employers and workers subscribed more liberally the hospital will have to be curtailed in its work. The working classes by their subscriptions last year paid for the upkeep of only 96 beds (i.e., £12,500), and the employers by their contributions supported simply 65 beds. The hospital is a magnificent insurance for both employers and employed, and both—who have financially made so much of late in Belfast—will have to contribute far more. For over half a century those of the working classes who have contributed a penny weekly (say 4*s*. 4*d*. a year) to the Royal Victoria Hospital, Belfast, have received in exchange the very best medical, surgical, and specialised advice in both extern and intern departments (except in the case of tuberculosis and zymotic and mental disease), and yet they have not individually increased their rate of subscriptions. In the serious circumstances the honorary treasurer appeals to both the working classes and the firms in Belfast to double their contributions.

DEATH OF MRS. MERCIER CLEMENTS.—**The** medical profession in the north of Ireland has suffered a personal loss in the death from encephalitis lethargica, on June 24th, of Mrs. Mercier Clements, wife of Dr. R. G. Mercier Clements, recently returned as a member of the Belfast City Council. Mrs. Mercier Clements was a well-known figure in public philanthropic work. An admirable speaker, she was closely identified with temperance work and maternity and rescue organisations. During the war she acted as honorary secretary of the unemployment scheme in Ulster.

COMMEMORATION DAY AT LIVINGSTONE COLLEGE.—A successful commemoration day, the first for five years, was held at Livingstone College (Leyton, London, E.) on June 25th. The Bishop of Chelmsford, who presided, based his plea for financial support on the proved economy of giving to missionary workers a short medical training. Time and money were thrown away if a man was sent thousands of miles to die from preventable causes within a few weeks of his arrival. The twenty-fourth session of the College will commence on Oct. 6th, and will be preceded during the last four days of September by a short course of lectures on the personal care of health in the tropics.

IRISH MEDICAL ASSOCIATION.—**The annual meeting** of the Irish Medical Association was held on June 17th at the Royal College of Surgeons in Ireland, Dr. J. Marshall Day, the President, being in the chair. There was a good attendance. The report of the Council stated that the membership in 1919 increased from 629 to 677. A discussion took place on the remuneration for attendance on members of the Royal Irish Constabulary, and it was decided to advise members of the Association to give three months' notice of resignation of office unless a satisfactory answer was received from the Treasury. A discussion also took place on the question of the remuneration of poor-law medical officers, and it was resolved that without legislation the service would remain unsatisfactory, and that pending legislation the minimum salary should be at least £300 a year. The newly-elected President, Dr. E. Magennis, then delivered an address dealing with the present position of the medical profession in Ireland. In the afternoon the members of the Association, together with a number of other guests, were hospitably entertained at a garden party in the Zoological Gardens by the High Sheriff of Dublin, Dr. J. C. McWalter.

PRESENTATIONS TO MEDICAL MEN.—**Dr. S. B. Coates,** on his retirement after a service of 42 years as a member of the Belfast Dispensary Service, was recently presented by his medical colleagues with a Celtic silver rose-bowl; while Dr. James Taylor, J.P., dispensary doctor and medical officer of health of Tandragee, co. Armagh, was the recipient of an address in an illuminated album from some 200 friends and patients in Tandragee and the surrounding districts and a wallet of banknotes. Both of these medical men enjoy the respect and confidence not only of their patients and friends, but of the whole body of the profession in the North of Ireland.—Dr. W. Allen Daley, the medical officer of health for Bootle, who will shortly take up a similar position at Blackburn, was presented on July 23rd, by the local medical fraternity, with a silver tea and coffee set as a mark of their esteem. In his reply Dr. Daley said that in some towns there was a disposition on the part of medical officers and local practitioners to regard each other as natural enemies. This was not in the interests of public health administration, which, to be successful, should have its foundations in domiciliary work.

FATAL ACCIDENT TO A MEDICAL WOMAN.—**The** death occurred on June 19th at Bromley, Kent, of Dr. Ethel Amy Mordaunt, following a bicycle accident. While her car, which she habitually drove herself, was being repaired, Dr. Mordaunt attempted to do her rounds on a bicycle to which an auto-wheel had been fixed. She had had only one day's experience of its management when she apparently lost control of the machine, and was thrown on to her shoulder, sustaining a fracture of the right humerus. Excision of the head was found necessary, and good progress appeared to follow the operation, but the wound became infected, and she died ten days after the accident at the age of 46. Dr. Mordaunt qualified L.R.C.P., L.R.C.S. Edin., L.R.F.P.S. Glasg., in 1908, and became M.D. Brux. in 1910, when she set up in practice at Bromley, where she was very well liked. She developed a large and successful practice, and found time to take an interest in local politics. She was a member of the Town Council from 1912 to 1919, and of the Education Committee. Her loss will be widely felt not only by her patients and personal friends but by the Bromley and Chislehurst Maternity Hospital, and many other local institutions and organisations to which she gave so generously of her scanty leisure.

Parliamentary Intelligence.

HOUSE OF LORDS.

TUESDAY, JUNE 22ND.

Sexual Offences Bill.

THE Sexual Offences Bill was committed to a Joint Committee of both Houses, which is considering the Criminal Law Amendment Bill and other Bills.

FRIDAY, JUNE 25TH.

Infantile Mortality in Mesopotamia.

Viscount GOSCHEN, speaking in a general debate on Mesopotamia, initiated by Lord ISLINGTON, said that he had only recently returned from the Middle East. He alluded to the difficulty of getting sufficient labour to develop Mesopotamia, and said that there was a most appalling infantile mortality there among the Arabs. They owed a great debt of gratitude to the British medical men at present in Baghdad, who in the short time they had been there had acted with the greatest vigour, and had tried to deal with this evil by the establishment of hospitals, by research, and by the spread of knowledge among the Arabs. They were endeavouring to induce the Arabs to come to the hospitals. But their efforts must take some time, and meantime there was a great shortage of labour which could only be met by the use of labour-saving appliances.

HOUSE OF COMMONS.

WEDNESDAY, JUNE 23RD.

Pensions for Mothers.

Mr. ROBERT RICHARDSON asked the Minister of Health whether, in view of the opinion of the House that a scheme of pensions for mothers was desirable, he would appoint a committee to inquire into the details of such a measure, with a view to an agreed Bill being introduced at the earliest possible date.—Dr. ADDISON replied: I do not think that any useful purpose would be served by the appointment of a committee such as the honourable Member suggests.

Birth Statistics.

Mr. NEWBOULD asked the Minister of Health whether he could give the number of births in the first quarter of the present year and for the same quarter in previous years, or other figures which would show in a simple form the normal number of births in years before the war, the decrease during the war, and the increase since the war.—Dr. ADDISON replied: The births registered in England and Wales in the first quarters of the last 11 years were:—

1910	*1911*	*1912*	*1913*	*1914*	*1915*
221,684	223,585	222,600	216,629	217,414	221,523
1916	*1917*	*1918*	*1919*	*1920*	
194,565	178,729	162,308	154,920	271,082	

The Finances of Voluntary Hospitals.

Mr. BRIANT asked the Minister of Health if, in the event of grants from public money being made to voluntary hospitals, they would be conditional on the appointment of representatives of the public to the governing bodies.—Dr. ADDISON replied: In the event of any grants being made from public funds for the assistance of the voluntary hospitals, such conditions will be attached to the grants as are necessary to secure that they are properly expended. But I do not think that the honourable Member's suggestion would be effective for this purpose.—Mr. L. MALONE asked the Minister of Health what decisions had been given or what steps had been taken in regard to the acute financial status of many of the London hospitals; whether he was aware that the delay in settling this question was having a very bad effect on the staffs, new recruits hesitating to come forward for training when hospitals were insolvent, and further increasing the strain on the management due to the condition of these affairs; and would he take steps at once to give this matter immediate attention, and also see that necessary action was taken without delay?—Dr. ADDISON replied: As I informed my honourable friend on June 16th, I have given this matter my anxious consideration for some time. The Council of King Edward's Fund have decided to make an immediate distribution, of £250000 to hospitals. The question of the extent to which this grant will require to be supplemented from other sources and the best method of giving such further assistance as is necessary without discouraging voluntary subscriptions is under consideration, but the whole question involves many complex issues, and I am not at present in a position to make any statement.

THURSDAY, JUNE 24TH.

Irish Health Council Report.

Major O'NEILL asked the Chief Secretary to the Lord Lieutenant of Ireland if he could say what progress had been made by the Irish Health Council; and whether they had yet made any report as to the improvement of health conditions in Ireland.—Mr. HENRY (Attorney General for Ireland) replied: I would refer my honourable and gallant friend to the Report of the Public Health Council on the Public Health and Medical Services in Ireland which was presented to the House on June 14th.

Medical Officer of Health for Brecknock.

Mr. SIDNEY ROBINSON asked the Minister of Health whether he was aware that, owing to the delay of his department in granting approval, no medical officer of health and school medical officer had been appointed for the county of Brecknock, and that the health of the county was thereby endangered; whether he was aware that repeated letters and telegrams appealing for sanction to the appointment remained unanswered; and whether he would take steps to expedite the decision in this matter.—Dr. ADDISON replied: I regret that there has been some delay in dealing with this application owing to difficulties regarding the apportionment of the officer's salary among the several offices held by him. There is, however, no reason why he should not forthwith commence his duties, as the Ministry's consent, when given, will have effect from the date on which he commenced his duties. A letter was addressed to the County Council on June 21st.

Parish Medical Officers in the Highlands.

Mr. CATHCART WASON asked the Secretary for Scotland if he was aware of the hard lot of Poor-law medical officers in the Highlands and Islands; and if it was possible for him to make a further grant out of the Highlands and Islands Relief Act, a measure which was specially passed to afford poor parishes adequate relief before the war, and which was infinitely more needed now.—Mr. MUNRO replied: I am aware that parish medical officers in the Highlands and Islands perform a public service often in circumstances of great difficulty. As regards their financial position, I understand that a great improvement, particularly in the less remunerative practices, has been effected by the Highlands and Islands (Medical Service) Grant Act, 1913. The grants payable to practitioners under that Act have been increased to meet conditions caused by the war. I shall be glad to look into any particular case which my honourable friend may wish to lay before me.

FRIDAY, JUNE 25TH.

Blind Persons Bill.

The House went into Committee on the Expenses Resolution of the Blind Persons Bill. The resolution was agreed to by 118 votes to 18.

MONDAY, JUNE 28TH.

Proposed Select Committee on Voluntary Hospitals.

Lieutenant-Colonel RAW asked the Minister of Health if, having regard to the serious position of the voluntary hospitals throughout the country and the consequent prejudicial effect on the national health, he would consider the desirability of appointing a Select Committee of the House to consider what steps, if any, could be taken by Parliament to relieve this serious situation until the new scheme for health services was considered.—Dr. ADDISON replied: No, Sir. I do not consider that at this stage the appointment of a Select Committee is desirable.

Ex-Service Men in Pauper Asylums.

Mr. HURD asked the Prime Minister whether his attention had been called to a resolution of the National Council of the Evangelical Free Churches regarding the incarceration of ex-Service men in pauper asylums; whether any ex-Service men were so incarcerated; and what steps would be taken to secure their treatment in a way commensurate with their service.—Major TRYON (Parliamentary Secretary to the Ministry of Pensions) replied: My right honourable friend's attention had not been called to the resolution referred to, but I may say that any ex-Service man suffering from certifiable insanity who is confined in a county or borough asylum is by special arrangement treated, not as a pauper lunatic, but as a Service patient, if his condition is found to be due to his service in the late war. As a Service patient he is entitled to all the privileges of a private patient, the entire cost of his maintenance and treatment and of the special privileges accorded to him being borne by the Ministry of Pensions. I am satisfied that it would not be in the interests of the men themselves or of their relatives that they should be treated in special establishments devoted exclusively to ex-Service cases. I am, however, taking steps to assure myself that the present arrangements are in all cases working satisfactorily and are the best that can be made in the interests of these unfortunate men.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

SPECIAL NOTICE. (FOR FELLOWS ONLY.)

Wednesday, July 7th.

The ANNUAL GENERAL MEETING of Fellows of the Society will be held in the Barnes Hall at 5 P.M.

Business:

Election of President and other Officers and Council for 1920-21.
Annual Report of the Council.
Annual Report of the Honorary Treasurers.
Annual Report of the Honorary Librarians.

MEETINGS OF SECTIONS.

Thursday, July 8th.

OBSTETRICS AND GYNÆCOLOGY (Hon. Secretaries—J. S. Fairbairn, Herbert Williamson): at 8 P.M.

Specimens:

Mr. Barris: Primary Carcinoma of Fallopian Tube.
Dr. A. H. Richardson: Fibroma of Ovary with Warty Projections.

Paper:

Dr. Gordon Ley: The Pathology of Accidental Hæmorrhage.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, in the Barnes Hall, Royal Society of Medicine, 1, Wimpole-street, W. (by permission of the Royal Society of Medicine).

Short Film Demonstrations illustrating Post-Graduate Teaching in Medicine, Surgery and its Specialties will be given on July 5th, 9th, and 12th, by the Fellowship of Medicine, in conjunction with the British Film Institute. Open to all members of the Medical Profession.

MONDAY, July 5th.—5.30 P.M., (1) Major H. C. Marble: Approved Methods, Splints and Appliances for the Treatment of Bone and Joint Injuries.

FRIDAY.—5.30 P.M., (1) (1) Dr. Edward L. Keyes, jun.: Radical Cure of Undescended Testes. (2) Dr. A. Berger: Repair of Fracture of Jaw.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

MONDAY, July 5th.—2 P.M., Mr. D. Armour: Operations. 2.30 P.M., Dr. A. Saunders: Visit to Medical Wards.
TUESDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 2.30 P.M., Mr. Addison: Visit to Surgical Wards.
WEDNESDAY.—2 P.M., Mr. D. Armour: Visit to Surgical Wards. 2.30 P.M., Mr. Addison: Operations.
THURSDAY.—2 P.M., Mr. D. Armour: Operations. 2.30 P.M., Dr. A. Saunders: Visit to Medical Wards.
FRIDAY.—2 P.M., Dr. Burnford: Visit to Medical Wards. 2.30 P.M., Mr. T. Gray: Operations.
SATURDAY.—2 P.M., Dr. Beddard: Visit to Medical Wards.
Daily:—10 A.M., Ward Visits. 2 P.M., In-patient Clinics and Operations.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, W.C. 1.

MEDICAL SCHOOL.

MONDAY, July 5th.—2-3.30 P.M., Out-patient Clinic: Dr. Collier. 3.30 P.M., Dr. Saunders: Demonstration of Ward Cases.
TUESDAY, July 6th.—2-3.30 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Dr. Hinds Howell: Trigeminal Neuralgia.
WEDNESDAY, July 7th.—2 P.M., Dr. Grainger Stewart: Peripheral Nerve Injuries. 3.15 P.M.
THURSDAY, July 8th.—2-3.30 P.M., Out-patient Clinic: Dr. Farquhar Buzzard. 3.30 P.M., Dr. Kinnier Wilson: Demonstration of Ward Cases.
FRIDAY, July 9th.—2-3.30 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Dr. James Taylor: Demonstration of Ward Cases.

Fee for Post-Graduate Course £7 7s. C. M. HINDS HOWELL, Dean.

MALE LOCK HOSPITAL, Dean-street, W.

MONDAY, July 5th, WEDNESDAY, AND FRIDAY.—5 P.M., Dr. C. Russ: Demonstration of the Treatment of Gonorrhœa by Electrolysis.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY, July 5th.—2.30 P.M., Mr. J. B. Banister: Gynæcological.
TUESDAY.—9.45 A.M., Lieut.-Col. R. H. Elliot: Selected Eye Cases and Operations. 2.30 P.M., Mr. C. H. Hayton: Laryngological; Dr. J. Metcalfe: Radiology.
WEDNESDAY.—2.30 P.M., Dr. W. J. Oliver: Dermatological.
THURSDAY.—2.30 P.M., Mr. N. Fleming: Ophthalmological. Dr. J. Metcalfe: Radiology.
FRIDAY.—2.30 P.M., Dr. C. E. Sundell: Diseases of Children.
SATURDAY.—3 P.M., Mr. H. W. Carson: Selected Surgical Cases.
Daily:—2.30 P.M., Operations, Medical and Surgical Clinics, &c.

ST. MARYLEBONE GENERAL DISPENSARY, 77, Welbeck-street, Cavendish-square, W.

Post-Graduate Course on Infant and Child Welfare.

TUESDAY, July 6th.—10.30 A.M., Dr. E. Pritchard: Practical Demonstrations on the Management and Feeding of Infants and Young Children—Lecture XI., The Treatment of the Heat Regulating Functions.
THURSDAY.—3 P.M., Lecture XII., The Feeding of Children between Nine Months and Two Years.

UNIVERSITY OF LONDON.

Advanced Lectures in Physiology to Students of the University and others interested in the subject.

A Course of Eight Lectures on the Bio-Chemistry of Sterols will be given in the Physiological Laboratory of the University, South Kensington, S.W.
TUESDAY, July 6th.—5 P.M., Lecture VIII., Mr. J. A. Gardner.

MANCHESTER FRENCH HOSPITAL POST-GRADUATE LECTURES, 24, Acomb-street (behind Whitworth Park).
THURSDAY, July 8th.—4.30 P.M., Dr. N. C. Haring: Ozæna.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

DALEY, W. A., M.D. Lond., D.P.H., has been appointed Medical Officer of Health for Blackburn.
GIBSON, R., M.D., Ch.B. Edin., Honorary Dermatologist, Salford Royal Hospital.
GOTLA, F., L.R.C.P. & S. Edin., L.F.P.S. Glasg., Attending Medical Officer, The Western Dispensary, Rochester Row, S.W.
PEARCE GOULD, E. L., M.D., M.Ch., F.R.C.S., Assistant Surgeon to the Middlesex Hospital.
SHELLEY, R., M.B., B.S. Lond., Assistant Medical Officer to the Middlesex County Council.
SYME, W. S., M.D. Edin., F.R.F.P. & S. Glasg., Surgeon to the Throat and Nose Department, Western Infirmary, Glasgow, and Lecturer on Diseases of the Throat and Nose, Glasgow University.
WOOD, F. T. H., M.D. Lond., D.P.H., Medical Officer of Health for Bootle.
St. Thomas's Hospital: RUSSELL, H. B., M.B., B.S. Lond., M.R.C.P., Resident Assistant Physician; REECE, L. N., M.B., B.S. Lond., F.R.C.S. Eng., Resident Assistant Surgeon; FOLEY, W. B., M.B., B.S. Lond., Resident Orthpædic House Surgeon.
Certifying Surgeons under the Factory and Workshop Acts: STEVENSON, J., M.B., B.Ch. R.U.I. (Redditch); YOUNG, H. G. K., M.R.C.S., L.R.C.P. Lond. (Braintree); GALPIN, C. G., M.R.C.S., L.R.C.P. Lond. (Frome).

Vacancies.

For further information refer to the advertisement columns.

Aberdeen, Rowett Research Institute in Animal Nutrition.—Physiologist. £400.
Battersea General Hospital (Incorporated), Battersea Park, S.W.—Res. M.O. £200.
Benenden National Sanatorium, Kent.—Asst. M.O. £250.
Birmingham General Hospital.—Res. M.O. £155.
Birmingham and Midland Eye Hospital.—Res. S.O. £200.
Bloomsbury Dispensary, 12, Bloomsbury-street, W.C.—Res. M.O. £250.
Bolingbroke Hospital, Wandsworth Common, S.W.—H.S. £150.
Bradford, Odsal Sanatorium.—Res. M.O. £350.
Bradford Royal Infirmary.—Res. Surg. O. £250.
Brighton, Royal Alexandra Hospital for Sick Children.—H.S. £150.
Bristol, Cossham Memorial Hospital, Kingswood.—Res. M.O. £200.
Bristol General Hospital.—Cas. H.S. £175.
Bristol Royal Infirmary.—H.S., and Cas. O.
Cardiff, King Edward VII. Hospital.—Two H.S.'s. £200.
Chesterfield and North Derbyshire Royal Hospital.—Jun. H.S. £250.
City of London Hospital for Diseases of the Chest, Victoria Park, E.—Res. M.O. £250.
Colchester, Essex County Hospital.—H.P. £200.
Cornwall Education Committee.—Female Asst. Sch. M.O. £500.
County of London.—Coroner for North-Eastern District. £1500.
Derby, Derbyshire Royal Infirmary.—Asst. H.S. and Cas. O. £200.
Dorset County Council.—Asst. County M.O. £500.
Dreadnought Hospital, Greenwich.—H.S. £100.
Durham County Hospital.—H.S. £200.
Federated Malay States.—Radiologist. £840–£980.
Galway, University College.—Prof. of Anat. £658.
Gloucester, Gloucestershire Royal Infirmary and Eye Institution.—H.P. £175.
Great Northern Central Hospital, Holloway, N.—Cas. O. £200. Also H.S. £150.
Hackney Union Infirmary.—Jun. Asst. M.O. £331.
Hampstead General and North-West London Hospital, Haverstock Hill, N.W.—Cas. S.O. £150.
Hospital for Consumption and Diseases of the Chest, Brompton.—H.P. £100. Also Asst. P.
Hospital for Sick Children, Great Ormond-street, W.C.—H.S. £50.
Huddersfield Royal Infirmary.—Sen. H.S. £250.
Hull Royal Infirmary.—Asst. H.S. £150.
Isle of Ely County Council.—Clin. Tuberc. O. and Asst. M.O.H. and Sch. M.O. £500.
Italian Hospital, Queen-square, W.C.—H.P. £150.
Johannesburg, South African School of Mines, &c.—Professor of Pharm. £1000.
Leeds Education Committee.—Asst. Sch. M.O. £500.
Leicester Royal Infirmary.—Two H.S.'s. £200.
London County Mental Hospital Service.—Sixth and Seventh Asst. M.O.'s. £300.
London County Council, Public Health Department.—Asst. M.O.'s. £400.
London Fever Hospital, Liverpool-road, Islington, N.—Res. Med. Supt. £400. Also Asst. Res. M.O. £200.
London Temperance Hospital, Hampstead-road, N.W.—Res. M.O. £200. Asst. Res. M.O. £120.
Maidstone, West Kent General Hospital.—H.S. £250.
Manchester, Ancoats Hospital.—Res. M.O. £150. Two Jun. H.S.'s. £100.

Manchester Royal Infirmary, Roby-street.—H.S. £50 first six months, £100 second.
Manchester University.—Lecturer in Anatomy. £500.
Middlesex Hospital, W.—Asst. P. Also Cas. M.O. Also P. for Diseases of Skin.
Norwich City.—Asst. Sch. M.O. and Asst. M.O.H. £560.
Poplar Metropolitan Borough.—Asst. Tuberc. O. £500.
Portsmouth County Borough.—Asst. M.O.H. and Chief Tuberc. O. £500.
Prince of Wales's General Hospital, Tottenham, N.—Jun. H.P. £120. Also Hon. Asst. S.
Queen Mary's Hospital for Children, Carshalton, Surrey.—Junior Asst. M.O. £515 6s.
Reading, Royal Berkshire Hospital.—H.S. £200.
Richmond Royal Hospital.—Hon. M.O.
Rotherham Hospital.—Jun. H.S. £150.
Royal Free Hospital, Gray's Inn-road, W.C.—H.P. and Second H.P. and Anæsth. £50 each. Also Hon. Anæsth. and Asst. S.'s.
Ryde, Royal Isle of Wight County Hospital.—Res. M.O. £250.
St. Leonard's Hospital, 204, Hoxton-street, E.—Third Res. M.O. £325.
St. Mark's Hospital for Cancer, Fistula, and Other Diseases of the Rectum, City-road, E.C.—H.S. £150.
St. Thomas's Hospital.—Asst. Radiologist. £500.
Salisbury General Infirmary.—H.S. and Asst. H.S. £200 and £150.
Seamen's Hospital, Albert Dock, Connaught-road, E.—H.S. £100.
Sheffield Royal Hospital.—Asst. Cas. O. £150.
Sheffield Royal Infirmary.—H.P. £150.
Sheffield University.—Demonstrator in Anat. £350.
Southampton County Borough.—Asst. M.O.H. £600.
Stafford, Staffordshire General Infirmary.—H.S. £250.
Townsville, Queensland, Australia.—Director, Institute of Tropical Medicine. £1200.
Victoria Hospital for Children, Tite-street, Chelsea, S.W.—H.P. and H.S. £100.
Warrington Infirmary and Dispensary.—Jun. H.S. £200.
Warrington, Whitecross Institution and Hospital.—Asst. Res. M.O. £300.
West London Hospital, Hammersmith, W.—H.S. and H.P. £50.
Westminster Hospital, Broad Sanctuary, S.W.—H.P. Also Fourth Asst. S.
Wigan Infirmary.—Sen. H.S. £250.
Wolverhampton and Staffordshire General Hospital.—H.S. £200.
Worcestershire County Council.—Asst. County M.O.'s and Sch. Oculist. £500 each.

The Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Okehampton, Wymondham, and at Penygroes.

Births, Marriages, and Deaths.

BIRTHS.

PARKINSON.—On the 24th June, the wife of John Parkinson, M.D., 4, Devonshire-place, W.1, of a son.
TASKER.—On June 23rd, at 58, New Cavendish-street, W.1, to Adela, wife of H. L. Tasker, M.D.—a daughter.

MARRIAGES.

ATTERIDGE—COLE.—On June 26th, at the Church of the Sacred Heart, Hampton Wick, Kevin Doyle Atteridge, M.R.C.S., L.R.C.P., to Arbery, second daughter of Mr. and Mrs. Herbert Cole.
BLUETT—CAESAR.—On June 26th, at St. Andrew's, Ashley-place, S.W., Dr. George Mallack Bluett, formerly of Palace-gardens-terrace, to Emily Henrietta, daughter of the late Mr. and Mrs. J. Caesar, of Tunbridge Wells.
BROWN—COPP.—On June 23rd, at S. Andrew's, Willesden Green, Alexander Middleton Brown, M.A., M.D., D.P.H., to Clara Ethel, eldest daughter of Mr. and Mrs. W. Copp, Cricklewood.
MOSSE—WILSON.—On June 23rd, at St. Andrew's Church, Norwich, Colton Grimley Tenison Mosse, M.R.C.S., L.R.C.P., to Florence Evelyn, only daughter of Mr. and Mrs. A. N. Wilson, of Norwich.

DEATHS.

DOVE.—On June 26th, suddenly, at Brightside, Crouch End-hill, Dr. Aug. C. Dove, aged 64.
HIND.—On June 21st, Lieut.-Col. Wheelton Hind, T.D., M.D., F.R.C.S., F.G.S., of Roxeth House, Stoke-on-Trent.
KILNER.—On June 23rd, at Black Gang, Walter John Kilner, M.B., M.R.C.P., of Ladbroke-grove and Bury St. Edmunds, aged 73.

BOOKS, ETC., RECEIVED.

ALLEN, GEORGE, AND UNWIN, LTD., London.
God's Price. By Maud Leeson. Pp. 314. 7s. 6d.

ARNOLD, EDWARD, London.
Orthopædics for Practitioners: An Introduction to the Practical Treatment of the Commoner Deformities. By P. B. Roth, F.R.C.S. Pp. 195. 10s. 6d.
Cookery for Dyspeptics. By the late Dr. George Herschell. Pp. 56. 2s. 6d.

ASH AND CO., London.
Guy's Hospital Nursing Guide. Edited by the Matron. 1920. Pp. 228. 3s.

ARROWSMITH, J. W., Bristol.
Neurological and Other Papers reprinted from the Writings of J. Michell Clarke, M.D., Lieutenant-Colonel, R.A.M.C. T.F. Pp. 263. 10s. 6d.

BARTH, JOHANN AMBROSIUS, Leipzig.
Deutscher Chirurgen-Kalender. By Prof. A. Borchard and Dr. Brunn. Pp. 288. M.36.
Die Deutsche Chirurgie im Weltkrieg. 1914 bis 1918. By Prof. A. Borchard and Prof. V. Schmieden. Two vols. Pp. 938. M.102.

BELL, G., AND SONS, London.
The Child Welfare Movement. By Janet E. Lane-Claypon, M.D., D.Sc. Pp. 341. 7s.
Hints on Royal Auction Bridge. By Lieut.-Col. S. H. Hingley. 2nd ed. Pp. 116. 3s. 6d.

BUTTERWORTH AND CO., London, India, Canada, and Australia.
A Text-book of Medical Jurisprudence and Toxicology By Roi Bahadur Jaising P. Modi, L.R.C.P. & S. Edin. With introduction by Lieut.-Col. W. Young, I.M.S. Pp. 576 + cxxx. Rs.10.

CHAPMAN AND HALL, London. WILEY, J., AND SONS, New York.
Food Inspection and Analysis. By A. E. Leach, S.B., and A. L. Winton, Ph.D. 4th ed. Pp. 1090, and 41 plates. 45s.
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Notes, Short Comments, and Answers to Correspondents.

SOME RACIAL PROBLEMS, SOCIAL EVILS, AND MODERN CRUSADES.[1]

BY ROBERT B. WILD, M.D., M.SC., F.R.C.P.,

DEAN OF THE MEDICAL FACULTY, UNIVERSITY OF MANCHESTER, ETC.

THE need for a clear appreciation of the factors involved in racial evolution is shown by many modern movements designed to improve the conditions of life, the welfare of the individual, and to produce a strong and virile race; on every hand there are crusades against predominant diseases, admitted or supposed social evils, and various forms of racial degeneration. One of my former teachers—a great master of medicine—Sir W. Roberts, used to impress upon us as the most important maxim in therapeutics never to order a dose of medicine without considering, "Can it possibly do harm?" This admirable caution is equally advisable before applying remedies to the body-politic as well as to the individual, for we must remember that the present conditions of life are the result of generations of growth and represent a balance of factors which has been slowly arrived at and which may more easily be disturbed than readjusted.

While I am far from wishing to make any attack upon these crusades, and least of all upon the sincere, well-meaning, and often altruistic persons who lead them, I do think it is important to consider their racial as well as their individual effects. The welfare of a particular individual may not always be coincident with the best interests of the nation or race to which he belongs.

The Regeneration of the Race.

The first racial problem which has to be faced is the need of every nation for a due supply of healthy children to replace the wastage of war and its aftermath of disease and starvation. Before the war the falling birth-rate of almost all the more highly civilised nations was a cause of anxiety to many. Possibly an increasing complexity of civilisation with greater demands for the development of the nervous system may have some influence upon the capacity for reproduction. Also the greater demands of social life and the expense and difficulty of maintaining and housing a family tend to raise the age of marriage until a sufficient income is assured with a consequent shortening of the child-bearing period. In many countries also these difficulties lead to the deliberate limitation of families or the procuring of abortion by illegitimate means. It is possible that in the future the community may be driven to protect itself by insisting upon a registration of pregnancy; even now in Scotland under certain circumstances the concealment of pregnancy is an indictable offence.

One of the handicaps which all nations have to carry is the burden of supporting unproductive members of the community or of maintaining during the period of growth and adolescence a number of children who die before they can repay to the nation, by their work, the cost of their rearing and education. Any widespread disease which removes individuals at a time when their working powers are on the wane and before they become a burden on the community is an advantage, and a disease which destroys the individual in early adolescence is a serious handicap.

Tuberculosis and Cancer Contrasted.

The crusade against tuberculosis can do nothing but good. I think, however, that too much is made of the bacillus and too little of the environment; it is pre-eminently a case where preventive medicine has an open field. The great increase of tuberculosis which appears to be so marked a feature in the countries of Central Europe which have suffered most from malnutrition, and its progressive increase as food became less and less plentiful, will, as its special incidence is carefully studied, undoubtedly lead to a better knowledge of its ætiology, and we may find that a deficiency of some vitamine factor in the food is responsible for a decrease in the resisting power of the tissues to the invasion of the tubercle bacillus. In this connexion it is interesting to note a paper by Dr. B. G. M. Baskett,[2] in which he shows how the death-rate from tuberculosis through a long series of years varies with the rise and fall of real wages, by which he means the relation between the wage paid and the price of food.

We may contrast with tuberculosis another disease of great importance—namely, cancer—against which we have also a crusade. Although cancer may attack patients at all ages, the great majority of cases occur in later middle life, when most of the sufferers have already done the greater and most productive part of their life's work. Their deaths at a time when they are likely soon to become a burden on the community lighten the load of unproductive consumers which the community has to carry, and cancer is therefore by no means an unmixed evil so far as the national welfare is concerned. If cancer was found to be curable or preventable to-morrow one of the results would be within a few years an enormous increase in the cost of old-age pensions. Similarly, conditions such as arterio-sclerosis are disastrous for the individual, but not to the race. An increase in the number of those who linger on to die by the slow process of senile decay is not a gain to the nation, and it has been said that "those who are noted as centenarians are rarely noted for anything else." Mere length of days without corresponding length of service is not a desirable aim from the point of view of racial welfare.

Venereal Disease.

The crusade against venereal disease, though of great benefit to the individual sufferer, may do more harm than good. I do not want to enter to-day into the question of prophylactic packets and cleansing stations, but would merely quote the old tag, "The means at hand to do ill deeds oft makes the ill deeds done." The true remedy for venereal disease, and also for that other social evil prostitution, is the encouragement of early marriage and the institution of such conditions of living as to facilitate the rearing of a family. Tennyson put his finger on a great evil when he wrote over 60 years ago—

> "Cursed be the social wants that sin against the strength of youth
> Cursed be the social lies that blind us to the living truth."

Many years ago I was much struck by the curious fact that venereal disease was particularly widespread in the most highly civilised and advanced nations of the world, and was forced to the conclusion that at any rate racial progress is not incompatible with considerable syphilitic infection. The association of syphilisation with civilisation is probably due to the fact that extensive promiscuity of sexual relations can only take place in comparatively large communities, and it is only in such communities that we find the combination of individuals for mutual defence, mutual help, and specialisation of function, which is the first foundation of civilisation. In a community where the competition is keen the members of it infected by venereal disease—generally speaking those individuals whose passions are strongest and moral control weakest—are at a disadvantage, and in comparison with the non-infected they are likely to leave fewer offspring and these less likely to reach a healthy maturity. Venereal disease therefore, if not too widespread, is not an unmixed evil for the race.

Eugenics.

Another crusade designed to raise the quality of the population is the cultivation of eugenics. As yet, however, any general application of the principle of eugenics is wanting, and it is likely to remain wanting until there is some agreement as to what is the ideal for which it is desirable to breed. The principles of heredity are still largely speculative, but in practice all breeders know that the first requisite for success is to have a clear idea of the object to be attained; for example, we may breed horses or pigeons for speed, flowers for colour or scent. But the aims of the eugenic expert in the regulation of human breeding are not yet agreed on. Some would breed for physical development, some for "the will to power," some for mental qualities. Among the latter, disagreement soon comes in, for to some the desirable type appears to be the quick alert mind ready to see immediate issues and turn them to practical use; to others the more highly developed intellectuality which works more slowly, takes longer views, and is the basis of scientific progress; while for a third group the progress of the world is bound up in a more highly developed emotional capacity with an advance of the spiritual life towards the religious ideal and of the altruistic as opposed to material interests. It may be possible to breed with more or less success for any one of these ideals, but not for all, and it is futile to expect any general agreement on the choice to be made. There is an old Lancashire saying that "It taks aw sorts o' foke to mak a world," and probably our present methods of sexual selection give, on the whole, as good results as would be obtained by a more conscious and deliberate method.

Drug Addictions.

I now pass on to another social evil of the widest importance and the subject of endless controversy—that of drug addictions. It is not always easy to say what is a drug addiction or that it is necessarily an evil. For example, the medicinal use of thyroid or the dietetic use of purins or alcohol may lead to habits of which the border is hard to

[1] Abridged from a Presidential Address delivered before the Manchester Medical Society, Feb. 4th, 1920.

[2] Brit. Med. Jour., Jan. 10th, 1920.

define. However, I wish to confine myself to a few of the more important drugs, producing either a narcotic or a stimulant action on some part of the central nervous system or the autonomic ganglia. Many hypotheses have been put forward as to how drug addictions arise, and every one of them may be right. I only wish to mention four. The late Dr. Norman Kerr looked upon the addiction to drugs as a definite disease closely allied to insanity, to which he gave the name "narcomania." The late Sir William Roberts classed the narcotics and stimulants in habitual use as "euphoric agents," and put down their employment simply to the pleasurable sensation of well-being which temporarily followed their use. Dr. Harrington Sainsbury says: "We fly to drugs and we initiate habit either to escape a distress of mind or of body, or to secure a pleasure; in some cases both objects are attained." This is often true, but I agree with Herbert Spencer's statement that in many people in a civilised state "the activities are cerebral in a degree beyond that to which the constitution of the race is adapted." To many people even the ordinary tasks of daily life produce a sense of exhaustion, which is temporarily relieved either by a narcotic which dulls the highest perceptive powers or by a stimulant which rouses the overfatigued brain to additional effort; some find the one method, some the other, the more effective.

At first probably recourse to these drugs is only made to relieve an exceptional strain or a blighting monotony of occupation, but as the indulgence is repeated more and more frequently the habit is acquired and the regular action of morphine, cocaine, alcohol, caffeine, or nicotine becomes essential to that smooth working of the functions of the body which gives rise to the feeling of euphoria or well-being. A stopping of the habitual drug is like the stopping of the lubricant in a machine; there is in working friction instead of smoothness, and the result of the disturbed functional activities is that severe symptom-complex of deprivation which we know as a "craving," and which leads to a larger dose of the drug by which the symptoms are quickly relieved. Thus the victim is led deeper and deeper into the power of the drug until all interest in life beyond that of satisfying his craving is gone, and to do this successfully he counts the world well lost. When this stage is reached his or her value as a citizen is gone, and, though it may seem a hard saying, the community is best served by his early death.

Of the narcotic drugs by far the most important is alcohol. The high-water mark of alcoholic consumption in this country—one of the highest in the world—was reached in 1900, when the estimate per head of total population was 32 gallons of beer, 1·22 gallons of proof spirits, and 0·42 gallons of wine. In 1913, the last full year before the war, it had fallen to 27 of beer, 0·67 of spirits, and 0·24 of wine. Later statistics are of no value as they are vitiated by variations in the alcoholic strength and the absence from the country of so large a proportion of men. It is now proved that alcohol is not a stimulant but a selective narcotic, which paralyses certain centres earlier than others, notably the centres for the perception of pain and discomfort, whether bodily or mental, and also the centres of inhibition.

Of the evil effects of the abuse of alcohol there is no need to speak, but we may ask whether there are any compensating advantages to the moderate users? First, of course, there is some food value. Alcohol can replace a considerable proportion of the carbohydrates and fats of the food, and it may also aid appetite and digestion, and enable otherwise unpalatable food to be enjoyed. In many monotonous occupations, and in times of stress, alcohol can enable work to be carried on for a time which would otherwise be impossible. It will, when taken after work, afford relaxation to the mind and promote a feeling of euphoria. It makes many men contented with their work who would otherwise rebel. One result of its action on the brain is by relaxing inhibition to promote freer social intercourse and mutual coöperation. It is not for nothing that dinners play so large a part in raising funds for charitable objects.

The Effect of Alcohol on the Race.

As regards the effect of alcohol upon the race it was long ago said that "alcohol was nature's finest sieve for the sifting of the fit from the unfit," and we can easily see that the consumers of alcohol are handicapped in the race for the highest places. First, there is the economic handicap, for as a food alcohol is expensive, and those who buy it have the less to spend on other necessaries which may be to their advantage. Secondly, though it may enable men to do work which they could not do without its aid, yet work done under its influence is less perfectly done, and they fail to reach the highest standard. Thirdly, those who from lack of self-control give way to excess in its use fall lower and lower in the social scale. As the pronounced alcoholic families tend also to die out in the course of a few generations, we can see that the indefinite continuance of the race is continued in the main by those members of the nation who are able to withstand the temptations of alcohol. Whether these and possibly other advantages outweigh the loss to the community, occasioned by the incapacity, sickness, and early death of those who take excess, must be a matter of individual opinion, but we shall all, before long, have to act upon our convictions as to whether the use of alcohol in this country shall be prohibited or allowed. Meanwhile, we shall all watch with the greatest interest the experiment now on trial in America. I doubt whether prohibition in this country would deprive the habitual alcoholic of his stimulant. We have had for some years a prohibition as close as possible of opium, morphia, and cocaine, and yet we find a considerable number of victims to these drugs. Where a law is opposed to the feelings of any large number of the community it is certain to be evaded, as in the old days when smuggling carried with it but little social stigma, and few people scrupled to take advantage of smuggled goods when they had the chance; a somewhat similar and recent example of the same kind is the law passed a few years ago to restrain juvenile smoking, and we all know the futility of the law designed to prevent unqualified dental practice. Any law which is evaded is worse than none, as its evasion produces a general lowering of that respect for law which is the basis of government.

I should like to quote you the conclusions arrived at by Dr. Harrington Sainsbury in his book on "Drugs and the Drug Habit"; he says:—

"For the principle of local option there is much to be adduced, but when all is said and done it is a tyranny—the tyranny of a majority, and when there is a bare preponderance it may be an unjustifiable tyranny. May it therefore be commended to the prohibitionist or abolitionist: 1. That temperance promises a higher moral yield than total abstinence. 2. That the aim of all education should be to develop character, to create a people strongwilled for good. 3. That it is possible to pay too high a price for sobriety and that this excessive price is paid when liberty of action is forfeited."

Of all narcotics ethyl alcohol is the least harmful, and we have already had evidence that its prohibition is likely to be followed by a resort to more harmful drugs.

Other Drugs.

Opium and morphia are the cause of even more serious results to the individual, but the number affected in this country is too small to have any appreciable effect on the race. Indian hemp, either as hashisch, gunja, or churrus, has never taken root in England, but it is widely used in our Asiatic dependencies and the neighbouring countries, and produces effects which are in some respects intermediate between those of alcohol and opium, with a marked tendency to cause insanity.

Of the other narcotics which give rise to habit I will only mention chloral hydrate, veronal, and sulphonal. It is less commonly known that acetanilide, in the form of headache powders, may give rise to a habit, and that aspirin is becoming increasingly popular as a pick-me-up. What the consequences of habitual aspirin taking may eventually be I do not know, as it is only of recent development, but I have seen cases of distinct craving for it. I want especially to call attention to this class of drugs, as the habit of taking them seems to be on the increase of late years, and the interesting point arises as to whether there is any connexion between this increase and the decrease in the consumption of alcohol since 1900.

Of nerve stimulants cocaine is probably the worst drug addiction we have to deal with. It is a direct stimulant to the brain, and the sense of euphoria produced is more intense than that produced by any other drug, hence its great seductive power. I have seen many cases, and three past students of my own either committed suicide or had to be sent to an asylum as a result of cocaine. The oxy-purin bases, caffeine, theobromine, and theocine, are so closely allied to the food constituents and so universally taken that many people do not recognise that they are taking drugs at all, and, moreover, they are drugs of comparatively recent introduction to our race. It is also worth noting that allied purin compounds, such as xanthin, hypoxanthin, and guanin, are present in considerable quantity in meat extracts, which are also coming more into use as popular stimulants and beverages. Physiologically the effects of a cup of beef tea or bovril is almost identical in kind with the effects of a cup of tea or coffee or cocoa.

It is an interesting subject of speculation how mankind in so many parts of the world has discovered and used the oxy-purin alkaloids, as the plants containing them have no characteristic smell or taste which might betray their presence to uncivilised people, and yet we find them in use all over the tropical parts of the world where perhaps the exhaustion produced by excessive heat is best relieved by a nerve stimulant. These bases are pure cerebral stimulants, especially to the intellectual faculties, they remove the sense of fatigue, and often enable work to be done under adverse conditions. Unlike alcohol, they do not impair the quality of the work.

Are there any bad effects to set off against these benefits? There is the possibility that by allowing work to be continued when the feeling of fatigue is an indication that rest is urgently required may lead to a nervous breakdown. Many

authorities also consider that the coincidence of a large increase of functional nervous diseases, especially neurasthenia, with the increased consumption of tea is more than a coincidence. Also a persistent high blood pressure often said to result in early arterio-sclerosis. Of the bad effects of excessive tea and coffee drinking we have all had experience, and I have seen several cases of acute poisoning with intense restlessness, garrulity, and absence of sleep, with a pulse of 160, followed by extreme exhaustion.

Another drug addiction is that of nicotine, next to caffeine the most universal of all, and which is also the subject of a crusade, which apparently makes little headway.

Conclusion.

Probably neither caffeine nor nicotine is a serious handicap to the nation at present, for our competitive nations are equally affected by these addictions. If the use of these drugs enables more and better work to be done and diminishes the dependence of old age by an earlier wearing out of the arterial tissues the nation will gain at the cost of the individual, and in peace as in war the welfare of the individual should be sacrificed for the good of the race.

In trying to bring before you some of the problems with which we are faced at the present time I suggest that it is necessary for us as medical men to take a broad and unsentimental view of the issues which will confront us in our work. If in the future the work of a medical man is to be more preventive than curative he will have to think more of the community and of the race than he has done in the past without thinking less of the individual.

ST. GEORGE'S HOSPITAL MEDICAL SCHOOL: THE PUPILS' REGISTER.

THOSE who are interested in the hospital and school will be glad to hear that their register is now ready for the press, and the Dean will be glad if anyone who wishes to subscribe for a copy will communicate with him. It is difficult at the present time to give any indication as to how much the book will cost, but it seems impossible to expect that it can be published at less than one guinea and it may very likely cost 30s. The book consists of a transcription of all the names (6500 in all) on the pupils' register from 1752 to 1918, with annotation notes on the men about whom it has been possible to find out anything. Among the famous names included in the work will be found those of John Hunter, Mathew Baillie, Thomas and Robert Keate, Sir Benjamin Brodie, Sir Prescott Hewett, Henry Gray, Frank Buckland, Edward Jenner, Sir Everard Home, and the two Gunnings; among those St. George's pupils whose names are not so likely to be known as alumni of the old school occur the names of Thomas Addison, Bence-Jones, John Gale Jones (the political agitator at the time of the French Revolution), Charles and George Hawkins, H. W. Bellew, and Aloyse Sprenger. It is hoped that it will be possible to reproduce photographic representations of the entry cards of old pupils, of which the school possesses a very complete collection of the various types of cards issued at different times, and also the house surgeon's certificate of 1769, presented to Thomas Keate by the board of governors. Dr. G. C. Peachey has written a foreword on medical education in the metropolis during the eighteenth century, in which he incorporates the names of those early pupils of the hospital whose names are to be found in the minutes of the weekly board, with annotation notes on many of them. The Dean would be glad to have the names of intending subscribers before the end of the year.

LOCAL SELF-GOVERNMENT AND SANITATION IN BIHAR AND ORISSA, 1918-19.

THE local administrative measures that are now delegated to the municipal and district authorities in the provinces of India are gradually becoming operative on the material and sanitary conditions of the people, who until recently were almost entirely without knowledge of, or interest in, such matters. In Bihar, at the elections of municipal commissioners in the towns, the number of votes recorded in nearly all cases exceeded 60 per cent. of the electorate, and the number of meetings held in most instances fulfilled the statutory requirement. Progress in action is, however, slow, and the Lieutenant-Governor regrets to note the apathy in many municipalities, of which 46 out of a total of 56 now possess autonomy. In Patna, however, the chief city of the province, which has a population of over 136,000, there was a marked change, the elections being hotly contested. The incidence of taxation in the province averages 1 rupee 12 annas per head (say, 2*s.* 4*d.*), which cannot be considered excessive; the expenditure on conservancy operations amounted to Rs. 875,015 (say, £58,334). It is unfortunate that there should be a dearth of men qualified to hold the appointment of health officer: out of 12 municipalities, for which the Government have undertaken to pay the full cost of the appointment, only 6 possess this necessary officer. It is hoped that shortly improved conditions may be offered to properly qualified men. In the rural areas of the province the growth of self-government is naturally slower; it depends, first, on the extension of the elective system to local boards; and, secondly, on the formation of "union committees," which have power to enforce adequate measures for the preservation of the public health. The efficiency of these committees "depends largely on the existence of a public spirit, which is as yet less common than it ought to be." *Chi va piano va sano* is probably as true here as elsewhere.

THE DANGEROUS REVOLVER AGAIN.

MANY fatal accidents as well as crimes due to the carrying of revolvers have been chronicled in THE LANCET, and presumably many cases of injury remain unrecorded by the press. The following is a good example of the ownership of pistols by persons who, to put the case mildly, can give no good excuse for carrying or using such weapons. A carman charged with murdering his brother by shooting him was recently acquitted at the Central Criminal Court, and it is possible, if not probable, that his account of the affair was a true one. He said that he was standing drink to his brother, and that having called for five glasses of beer he put his hand in his coat pocket to find a Treasury note wherewith to pay. He "did not know that the revolver was in his pocket," and in pulling it out discharged it, with the fatal result stated. A carman with Treasury notes and a forgotten revolver loose together in the pocket of his coat, and in a public-house, sounds as if he might be dangerous to more than his personal friends. To prevent the carrying of weapons may not be easy; at present it is not unlawful. In the instance cited the man may have failed to have a gun-licence, but subject to that he has been acquitted of manslaughter as well as of murder, and has committed no offence.

LEBANON MENTAL HOSPITAL.

Dr. H. Watson Smith, O.B.E., director of the Lebanon Hospital for Mental Diseases, Syria, states in his annual report that 109 patients (68 men and 41 women) were admitted to the hospital during the year. Thirty-five were discharged cured, 14 improved, 16 did not improve, 8 patients were found to be not insane, and 12 deaths occurred. At the end of March there remained in hospital 85 patients, an increase of 24 over the figures for last year. Recently there has been an increase in the number of acute cases, many of which were soldiers sent by the French military authorities, and in these the results of treatment have been gratifying. The general health of the hospital, Dr. Smith reports, is good, and there is a fairly good supply of food and medicines, but after the war period much is needed for the general improvement and repair of the institution. The London offices of the Lebanon Hospital are at 35, Queen Victoria-street, E.C.

RATS IN HOUSES: SOUTHWICK v. STANTON.

IN an action in the county court a plaintiff claimed damages, alleging a breach by the defendant of an implied condition under the Housing of the Working Classes Act, 1890, and the Housing, Town Planning, &c., Act, 1909, that a house let to him by the defendant was reasonably fit for human habitation. It was alleged that the house was overrun by rats from a neighbouring sewer, which destroyed clothing belonging to the plaintiff, as well as provisions kept by him in a small room, which he used as a shop. The county court judge found as a fact that the house was, owing to the continuous presence of rats, unfit for habitation, and following the old case of Campbell *v.* Wenlock, a case of a house infested by bugs, that the implied condition applied to the whole house, and that there had been a breach of it if any of the rooms were unfit for habitation. The divisional court held that the county court judge was wrong, and that an incursion by rats did not constitute a breach of the defendant's contract under the Housing, Town Planning, &c., Act. The appeal raised points as to the rats having invaded the house from adjoining premises, and not being continuously there, and also as to the use as a shop of the part which they entered. There was another question also as to the extent of the remedy if the house were to be held unfit for habitation. The case, therefore, does not appear to go so far as to say that the presence of rats cannot make a house unfit for human habitation. Apparently, however, their presence must be continuous, and must make itself felt in rooms used for human habitation and not merely as store-rooms or for trade. Rats are more likely to be found as visitors than as continuous inhabitants of any house, but that their presence is highly undesirable from a sanitary point of view there can be no question. Their habits and the various methods for dealing with them are described in a convenient form in Dr. W. J. Howarth's "Report on Rat Repression in the City," commented on in THE LANCET of June 26th, p. 1374.

J. R. (Crawley).—We are afraid the case you mention is of no pathological interest.

M. F.—The Swiss Passport Office is now conveniently situated for doctors at No. 10, Upper Wimpole-street, London, W.1.